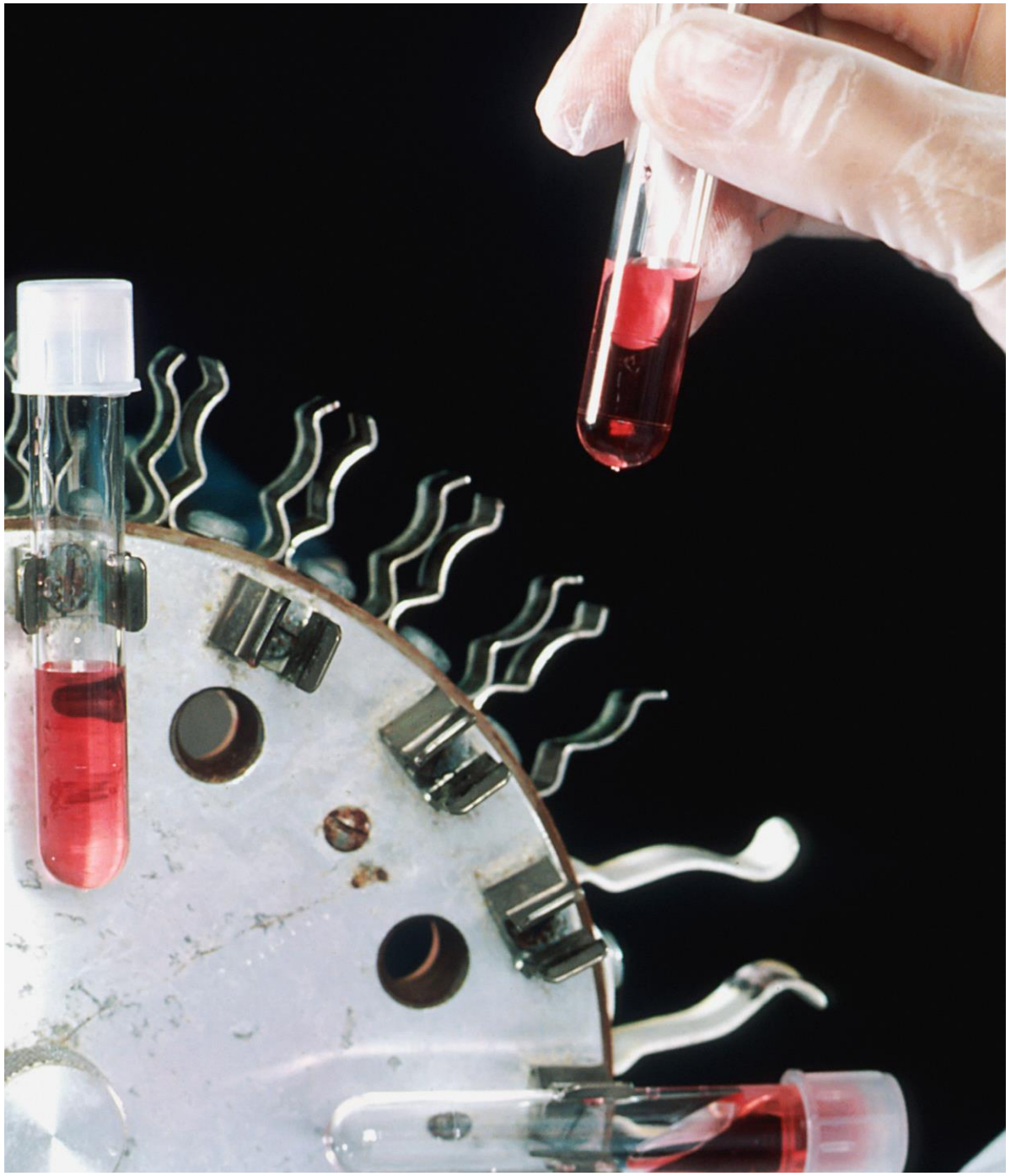

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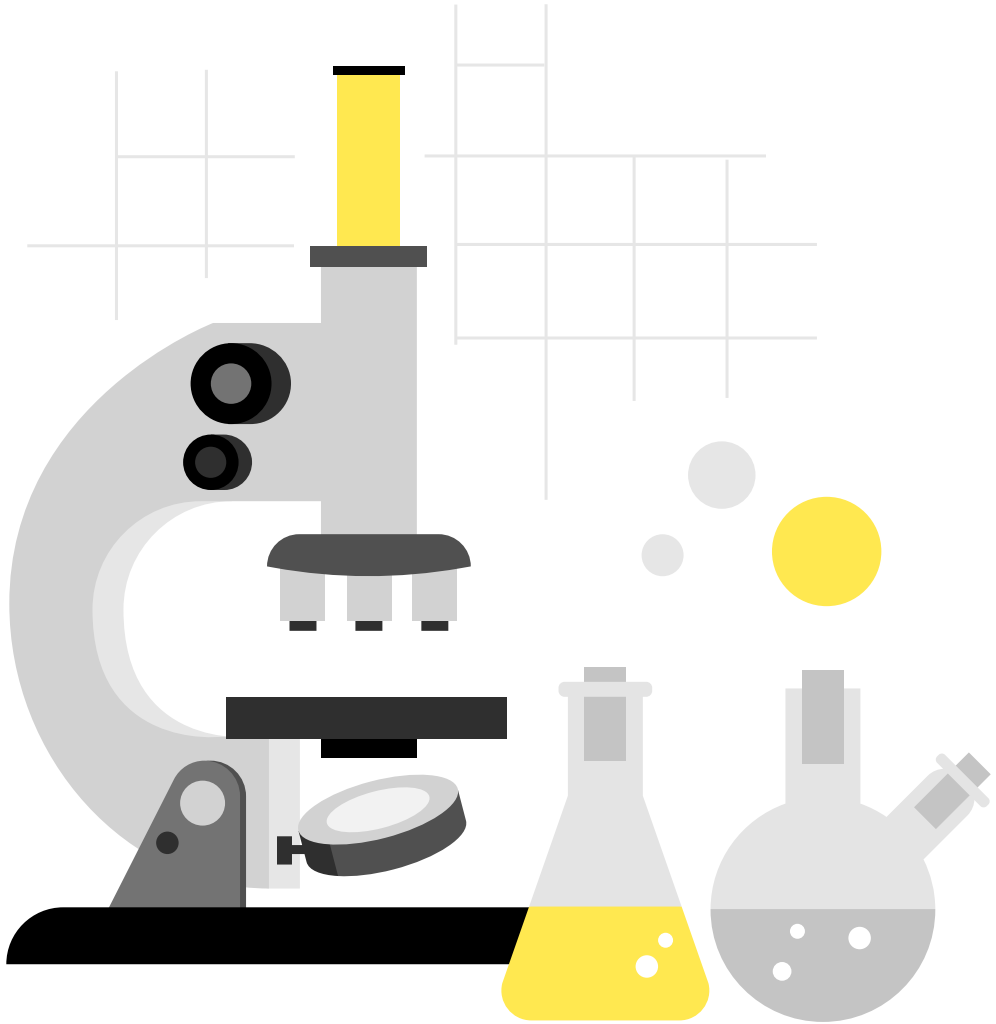
China Life Sciences

A growth sector driving real estate demand

August 2022



Foreword

The 20th century has seen the emergence of the life science industry, with growth accelerating in the 1970-80s. China's life science industry has been catching up with significant progress in the last decade. The COVID-19 pandemic, new vaccine advances as well as development of medical technology have made the life science sector a key focus for investment.

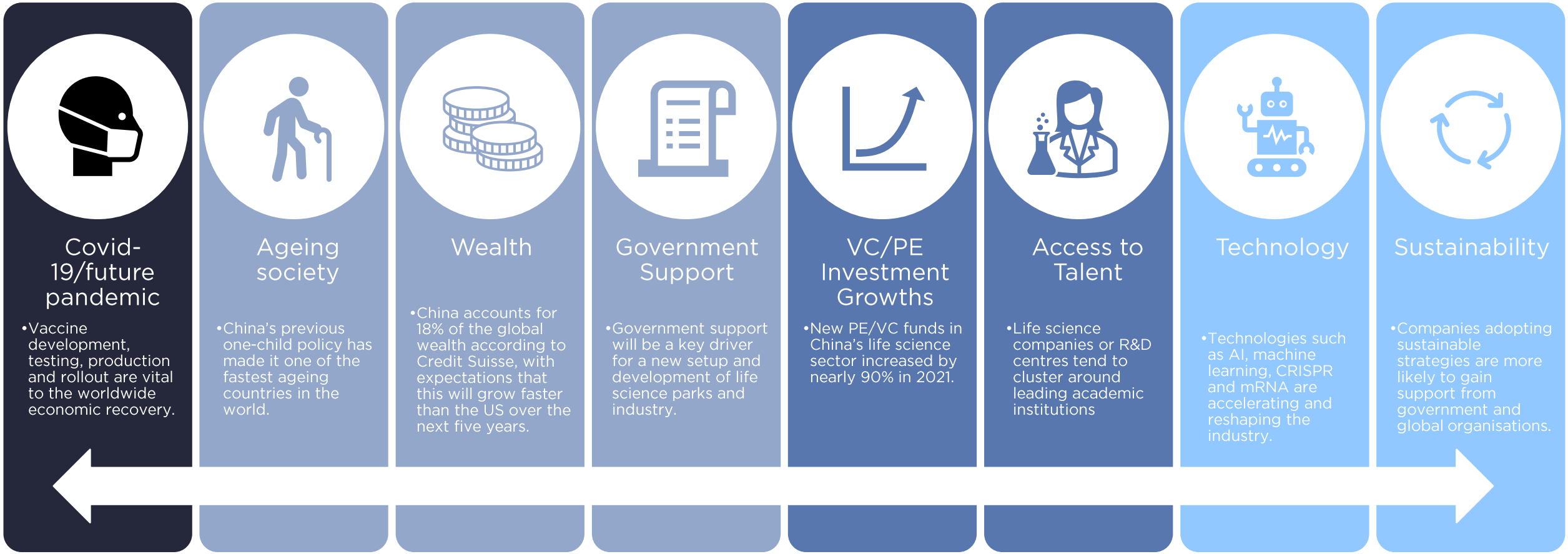
The 14th Five-Year Plan on Health launched in May 2022 is set to upgrade the healthcare system and speed up the informatisation of the sector. By 2035, the Chinese average life expectancy is expected to reach over 80.

The life sciences sector has been developing and innovating over the decades, though it only came under the spotlight recently. Faced with broad demands from companies and the promising future of the industry, real estate investors are increasingly showing interest.

According to PitchBook, the US still dominates financing of the life sciences sector, accounting for 67% of the global investment (including M&A, IPO, PE/VC), but over the past five years, China has seen its market share increase by 3-5 percentage points (ppts). In China, a shortage of R&D facilities and rapidly growing demand will keep vacancy rates low and push rents to new highs, attracting new investment and compressing yields.

This report aims to provide a basic understanding of the Chinese life sciences market, including industry growth drivers, market dynamics and most importantly, the real estate needs, trends and outlook. We've selected two large life science companies as the benchmark to figure out site selection strategies. We hope to provide a reference for landlords, end users, investors, governmental departments, operators and other industry participants.

Growth drivers



China has carried out a series of healthcare reforms and industrial promotions to improve the market environment. Key measures include adopting the Marketing Authorisation Holder (MAH) system, shortening the drug approval process, updating the medical insurance catalogue to be more supportive of innovative drugs and lowering the R&D risks and transaction costs. The policy environment has driven the capacity upgrade for APIs and medical device industries, boosting economies of scale, synergies and clustering as well as demand.

Life science firms often require significant financial support in the early stages. They need to negotiate with the local government for most support or seek cooperation for a long-term win-win outcome, which depends on the nature of the investment, the company scale and potential benefits for the local economy.

National

- Nationwide tax discounts or exemption
- Specific tax cuts are available for industrial parks in certain regions, for example, Lingang New Area in Shanghai FTZ offers 15% of corporate income tax to eligible biomedicine companies in core R&D and manufacturing sections.

Local

- Finance: encourage innovation & development/ expand international market/ expand and improve quality/ build platforms
- Talent: housing subsidies/ household registration/ healthcare insurance/ education for children
- Land: targeted land supply/ flexible land transfer period/ production facilities on industrial land adapted for the biomedicine industry
- Supervision: efficient and simplified approval procedure/ fast channel for eligible firms and projects

Source: Governmental websites, Savills Research

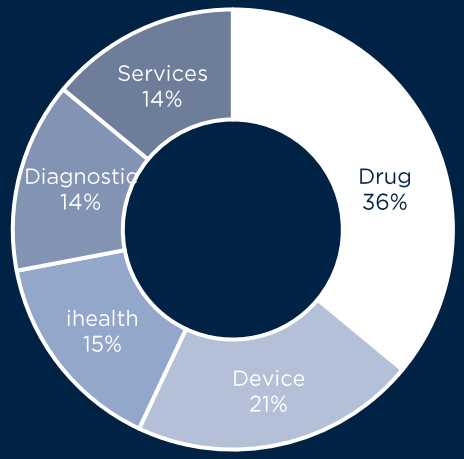
The global medical market's demand for life science products and services keeps attracting investment throughout the R&D, clinical and manufacturing phases.

Medical outsourcing has been on the rise in recent years. In 2021, China's financing in CRO/ CDMO has doubled from 2020. The CAGR over the past five years was 27%.

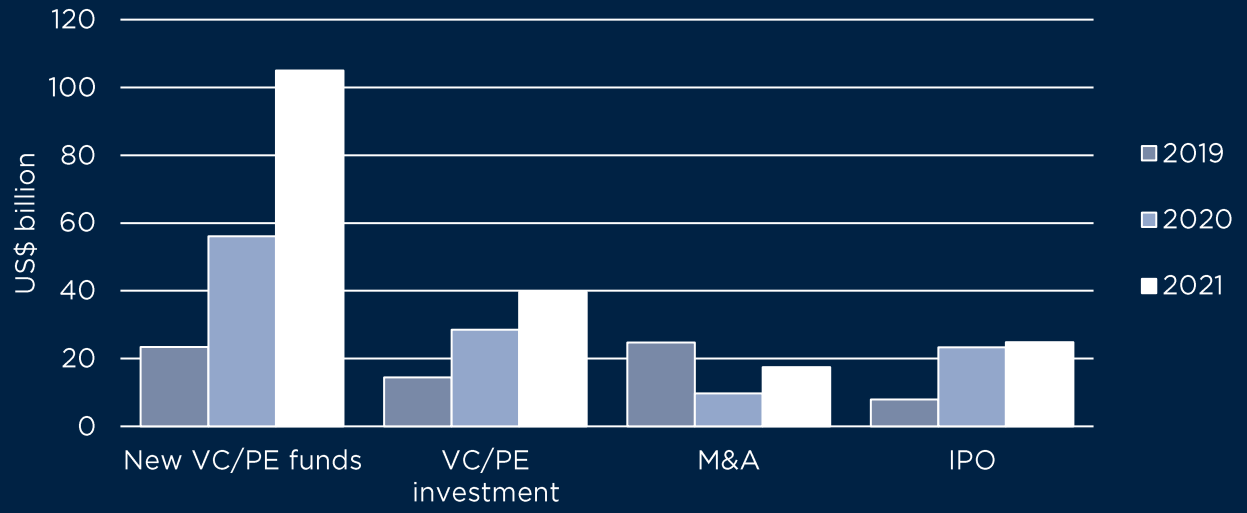
As firms come to rely more heavily on outsourcing companies for more advanced work, they will need to invest, expand and upgrade their current premises and facilities to meet these needs.

> China's life sciences investment value increased by 55% in 2021, of which PE/VC funds grew by nearly 90%.

VC Investment by Sector



China Life sciences Investment Activity



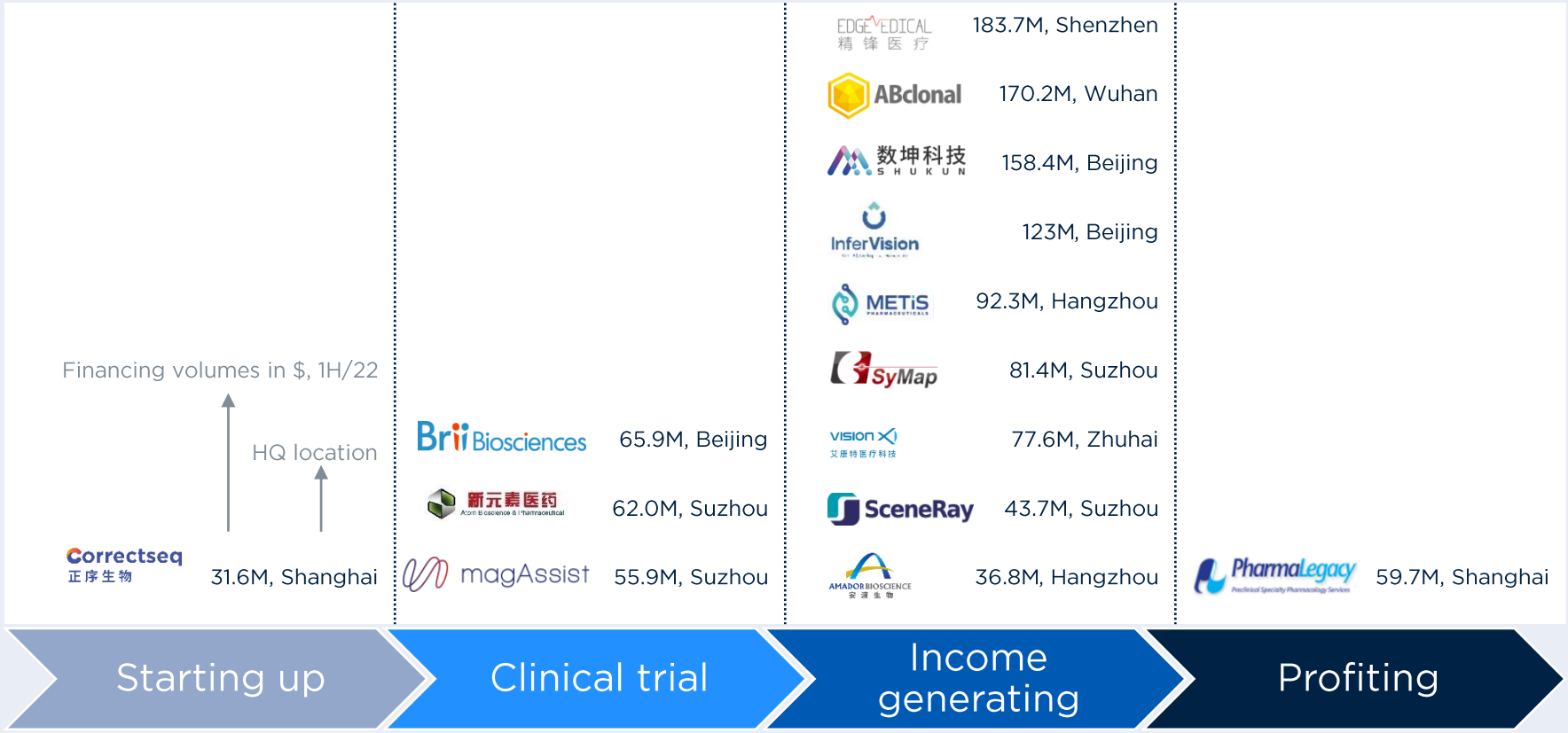
Source: Savills Research using ChinaBio data

Life science companies with HQs in China funded by a large VC company

The figure shows domestic firms which have received more than USD20M in financing from a single VC company (other investors not listed) and their HQ locations. These companies are currently in different growth stages.

More than half of the companies are headquartered in Yangtze River Delta (YRD) cities, especially Suzhou, one of the key biomedical markets in the country.

Some investment firms with exposure to biomedical firms are exploring opportunities to invest in the life sciences real estate (LSRE) sector.



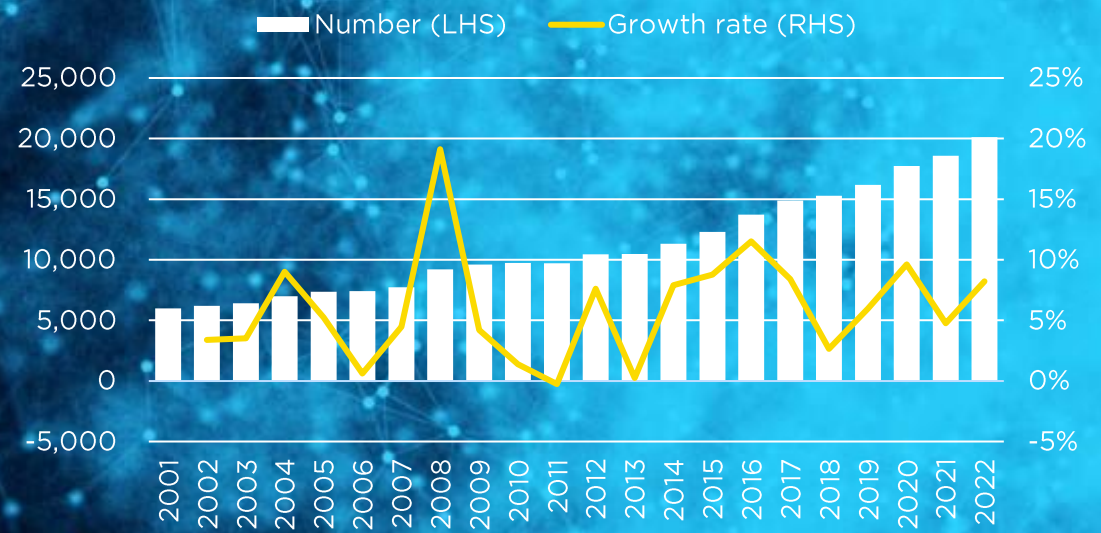
Source: Savills Research using PitchBook data

Biotech & Infotech

The scale of the global medical research pipeline has grown to 20,109 by January 2022, up 8.2% from 12 months earlier, according to Informa Pharma Intelligence. The number of R&D companies in China by January 2022 has increased by 43%, bringing its global share from 9% to 12%. Ranked second in terms of new medicine development, China (20.8%) has been upgrading and innovating its biotechnology industry. One example is the new generation of biotherapy featuring gene and cell engineering that provides a potential solution for more precise tumour treatment.

A combination of biotech and infotech is bringing more value to the life science sector. Taking "healthcare+AI" as an example, AI can cut the time needed for new drug development and even replace part of a doctor's work. In 2021, research indicated that AI technology could potentially shorten the drug development period to **18 months**, and reduce costs by **90%** compared to traditional drug development methods.

Global research pipeline, by Jan 2022



Source: Savills Research using Informa Pharmaprojects data

Key biomedical industry parks in China

Top 20 strongest and most innovative industrial parks distribution

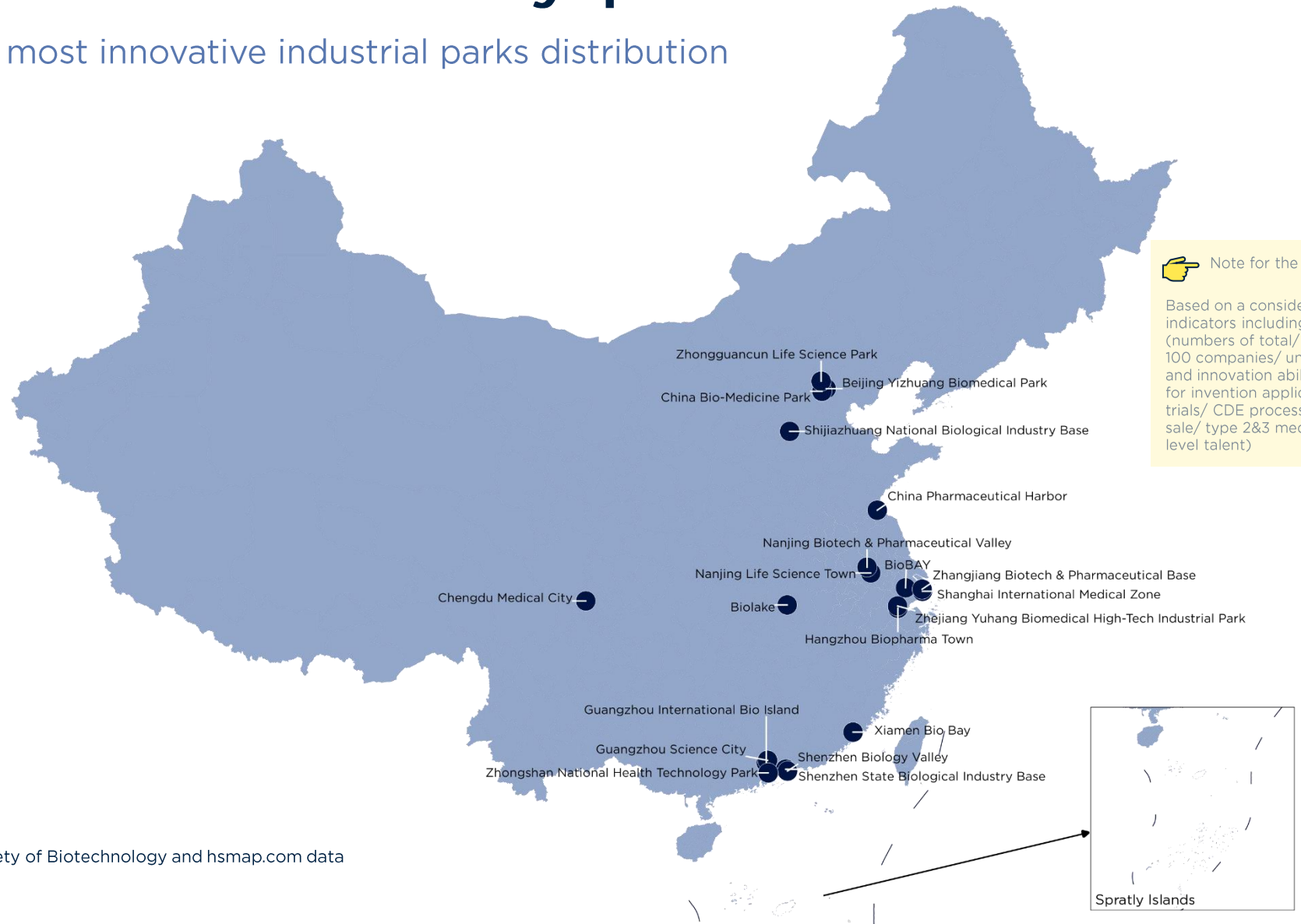
While China's biomedical industry started later than some overseas countries, it has already, with the help of supportive policies, developed into several distinct clusters.

YRD and Pearl River Delta regions have six parks each, accounting for most of the leading clusters.

Zhongguancun Life Science Park in Beijing leads in the number of sci-tech talents and innovation platforms.

Zhangjiang, Shanghai boasts the most biopharma R&D and manufacturing companies as well as the largest number of products in development.

Guangzhou Science City meanwhile has received the most medical device approvals.



Note for the rating system:

Based on a consideration of multiple indicators including company strength (numbers of total/ hi-tech/ medical top 100 companies/ unicorn/ listed companies) and innovation ability (number of patent for invention applications/ drug clinical trials/ CDE processing drugs/ drugs for sale/ type 2&3 medical equipment/ high-level talent)

Source: Savills Research using Chinese Society of Biotechnology and hsmap.com data

> Life science real estate (LSRE) demand is incredibly diverse, whether that be specialised laboratories, incubators or a headquarter space in a traditional office building. In contrast to other industries, life science-related work cannot be done at home and the pandemic did little to change this.

End-user demand increases

A talented workforce is critical for life science companies to make breakthroughs. Large cities usually gather the best and the brightest usually, are also closer to end-users and boast a concentration of leading universities, science parks and research institutes, coupled with strong hospital infrastructure critical to R&D, as well as a robust private equity financing environment backed by the government.

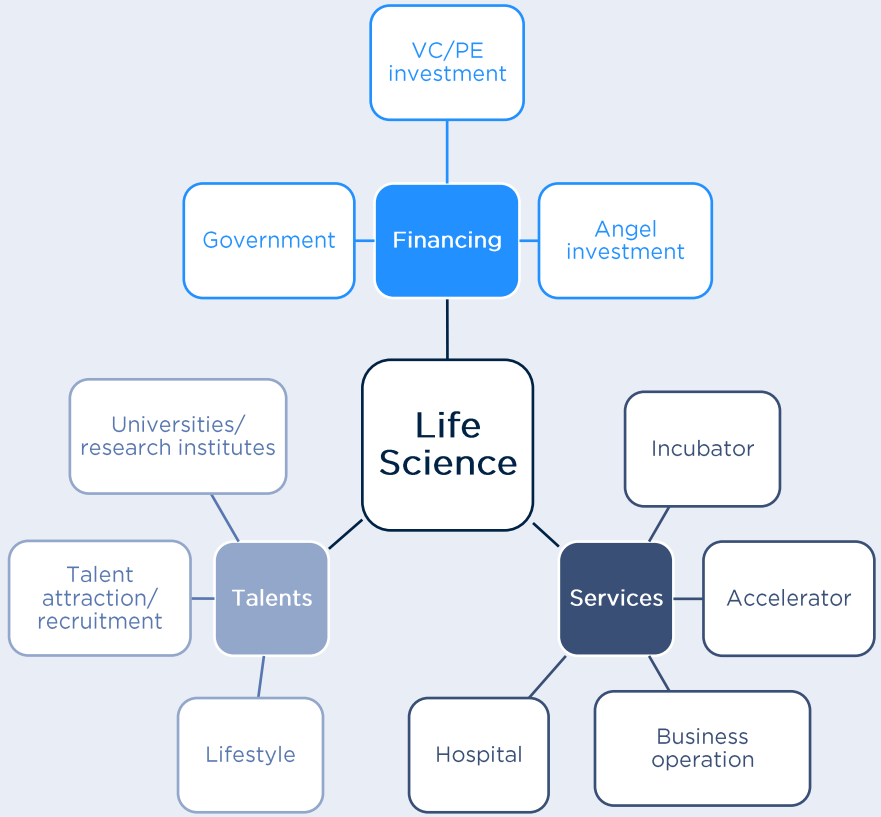
Properly financed life science companies will expand headcount accordingly, this, along with tech advances and capacity upgrades, will lead to the need for larger offices in prime locations and R&D space in industrial parks (due to the need for environmental impact assessments and tenant stickiness).

China's Top 20 University Rankings for Life Science Courses

Rank	University	City
1	Tsinghua University	Beijing
2	Peking University	Beijing
3	Fudan University	Shanghai
4	Zhejiang University	Hangzhou
5	University of Science and Technology of China	Hefei
6	Nanjing University	Nanjing
7	East China Normal University	Shanghai
8	Shanghai Jiao Tong University	Shanghai
9	Nankai University	Tianjin
10	Southern University of Science and Technology	Shenzhen
11	Beijing Normal University	Beijing
12	China Agricultural University	Beijing
13	Wuhan University	Wuhan
14	Beihang University	Beijing
15	Beijing University Of Technology	Beijing
16	Huazhong University of Science and Technology	Wuhan
17	Hunan University	Changsha
18	Central South University	Changsha
19	Fuzhou University	Fuzhou
20	Huazhong Agricultural University	Wuhan

Source: Times Higher Education

Life Science Ecosystem



Location strategies

Healthcare firms usually have abundant budgets and prefer high-quality projects in core/sought-after locations for their main offices.

Business parks are hot destinations for companies to set up labs, R&D centres and back offices offering industry clustering and large floorplates.

Despite a small share of the citywide office demand, the healthcare industry has seen increasing office demand in recent years, up 3-5 ppts from five years ago.

AstraZeneca
26,000 sq m
North City, Hangzhou

I-MAB BIOPHARMA
12,000 sq m
Zhangjiang, Shanghai

BeiGene
12,000 sq m
CBD, Beijing

BAYER
10,000 sq m
CBD Vicinity, Beijing

瑞慈医疗 RICH HEALTHCARE
8,000 sq m
Qiantan, Shanghai

乐药集团 Leyo pharm
5,000 sq m
Bio Island, Guangzhou

mindray
2,100 sq m
Dayuan, Chengdu

MSD
900 sq m
Hangkong Rd, Wuhan

大崎健康
600 sq m
Qianhai, Shenzhen

Source: Savills Research, selected leasing transactions in 2021-22

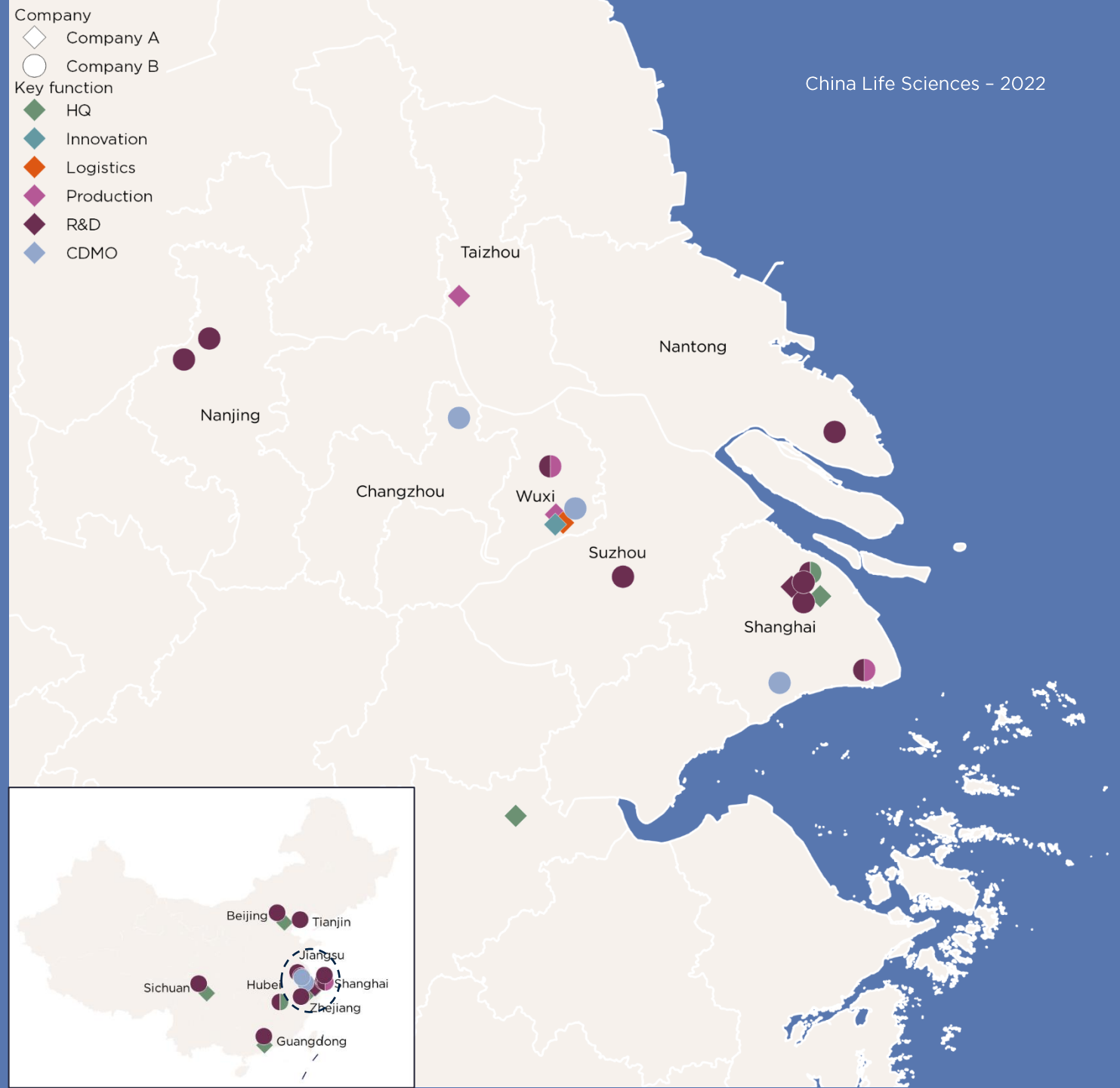
Case study

We selected two large life sciences companies (one MNC and the other domestic). We looked at the distribution and function of their operations to produce several insights.

- Taizhou set up China's first state-level medical hi-tech industry park in 2009. As the market developed and evolved, the YRD region has become a leader in the biomedical industry and a hot spot for many MNCs and domestic firms setting up R&D centres and manufacturing bases.
- National and regional HQs are usually located in first-tier or home cities, especially Shanghai where many MNCs are headquartered; R&D, testing and manufacturing bases are usually located in satellite or lower-tier cities.
- Large, mature companies tend to outsource some services and focus resources and business on R&D.
- Aside from the typical factors such as local policies, natural environment and costs, other considerations such as talent and local educational resources are essential in attracting companies as they are a key factor in future innovative potential. It is also important to assign operations based on the unique strengths of a particular locality, for example, Beijing would be a good location for administrative functions and Hangzhou would be ideal for setting up a digital healthcare division.

Source: Company websites, Savills Research

*Only including locations disclosed on company websites

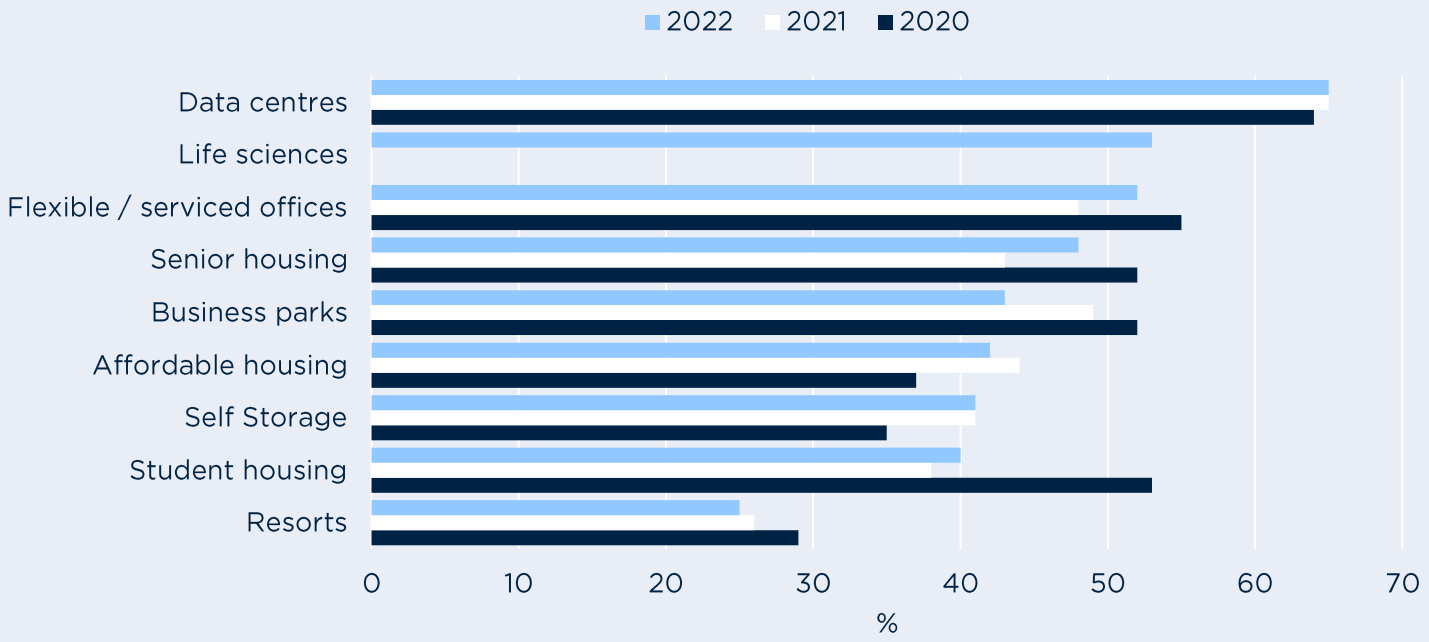


Investment attention on the rise

Industrial parks have been overlooked by investors in the past due to their location, poor asset quality, and weak tenant rental affordability, however as the market matures and the urban regeneration process accelerates, many sci-tech companies are gathering in such locations. The increasing industry clustering, tenant stickiness and fundamental drivers attract end-user occupiers and investors.

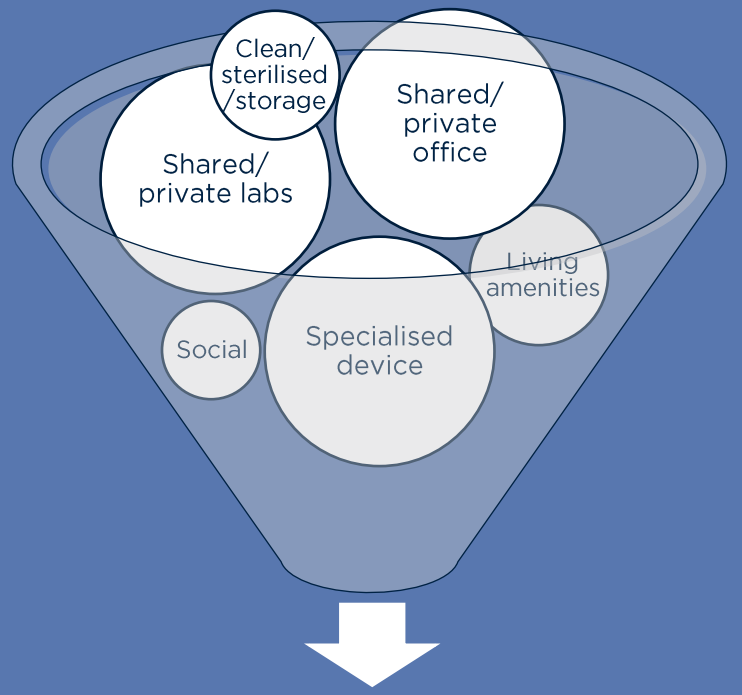
The latest survey by ULI and PwC showed life sciences properties, with high-profile occupiers, high affordability and relatively stable lease term, have risen to the second place of investment interest among all the niche sectors, only after data centre, and remain a positive prospect in the foreseeable future.

Emerging Trends in Real Estate (APAC) Survey: Niche Sectors in Which Investors are Now Active or to be Active in 2022



Source: ULI, PwC, Savills Research

Shared services: Asset light



The rapid growth in demand for LSRE has been met with a shortage of quality supply, even in first-tier cities, which has led to steady rental growth in life science R&D offices. Projects with Environmental Impact Assessment (EIA) certification have a more significant rental premium than those which don't have one, and these premiums will vary depending on the exact parameters of the certificate. Despite a big government push to revitalise existing real estate assets, there are many challenges and limits as to what can be done in reality. For start-ups, conducting a test or trial typically means getting their own lab space and equipment or help from third-party testing agencies, which poses a major challenge if they have limited funds.

One way around this is by adapting the coworking model / shared economy to the life science industry. This means sharing lab space, equipment and management services to help start-ups, small- and medium-sized as well as mature companies to grow faster. At the same time, private labs and offices can also be provided to ensure the protection of intellectual property rights. Furthermore, operators can cooperate with colleges, pharmaceutical companies, hospitals, research institutes and governmental departments to pool resources for new projects and effectively transform and augment successful outcomes.

Insights

New Market Players

The recent surge in interest in the sector has sparked a rush of new players to try to enter the market whether that be developers and traditional real estate investors or private equity and VC firms.

While the former traditional real estate firms look to invest, build/convert, lease and eventually dispose of their asset, many local authorities are looking for long-term partners and occupiers. PE and VC firms hit the sweet spot as besides having development capabilities, they may also have invested in a range of life sciences companies as well as down and upstream industries that will be their eventual tenants and meet local authorities' requirements.

Differentiated Area Developments

As companies grow costs rise, businesses diversify and divisions specialise, what once made sense in terms of spatial distribution may not make sense any longer.

At the same time, as the industry grows and matures, more local authorities will seek to gain a foothold in the sector, leveraging their unique strengths or comparative advantages to convince firms to set up their shops.

Inflows and Outflows

Industry clustering and specialised facilities are key to attracting and retaining companies. Life science firms require specialised devices and environments throughout the R&D, clinical trial and manufacturing stages. This, along with a limited supply of available properties, makes life science tenants more likely to extend their lease terms.

The flip side of that is that if there is an under-investment supporting amenities and facilities, firms could over time decide to relocate and once they do, it will be hard or impossible to bring them back again.

Domestic Pharma Going Abroad

Domestic pharmaceutical companies' R&D capabilities are maturing and are now expanding overseas either through independent development, license-out, patent licensing or joint development.

More than 50 companies announced plans to go overseas in 1H/2022, including Jiangsu Hengrui Pharmaceuticals, which has set up a wholly-owned subsidiary engaged in innovative drugs.

Outlook

Short-term

Limited supply and strong demand will put upward pressure on the rents of projects with EIA licenses.

Domestic businesses are expected to dominate the market, though MNCs will continue investing and establishing HQs, innovation and R&D centres.

LSRE investors are expected to become more active, searching for higher yields and bridging the supply shortfall through asset renovation.

Long-term

An influx of venture capital and top talent will continue to foster industry growth. Closer cooperation between pharmaceutical firms and real estate companies in project renovation and operation will be likely.

Regulation and government price setting will result in industry consolidation; increasing M&As and collaborations will generate more office or lab space demand.

Clusters of businesses, talent and capital will become more entrenched in key locations.

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