

- ◆ The 20 most resilient global cities
- ◆ Hybrid working
- ◆ Retail evolution: experience, convenience or both?
- ◆ Shifting attitudes in residential real estate
- ◆ Solar energy
- ◆ Why workplaces are adopting a more sustainable ethos



Issue 04. 2021

Impacts

THE FUTURE
OF GLOBAL
REAL ESTATE

EVOLVE

How changing cities

are shaping

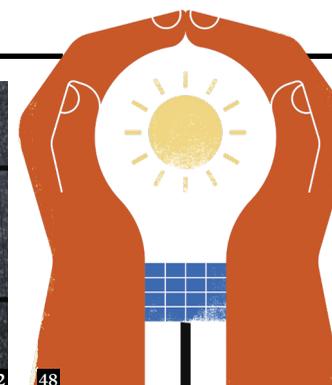
how we work

and live our lives

- ◆ Global investment in 2022
- ◆ How cities are tackling the risks of climate change
- ◆ Transition to a human workplace
- ◆ Pioneers in clean tech
- ◆ The role of real estate in offsetting carbon emissions
- ◆ The towns and cities attracting life science investment
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“Our behaviour will continue to evolve, as will the requirements for real estate across all sectors”



Mark Ridley Global Chief Executive Officer, Savills

Welcome to the latest edition of *Impacts*, which centres on the theme 'evolve'.

While 'evolve' characterises gradual development, 'adapt' has also been a theme of the past 18 months as we've adapted rapidly to cope with the pandemic. As we enter a period when vaccinations and other measures help us to look to the future, our behaviour will continue to evolve, as will the requirements for real estate across all sectors.

In fact, this period has shown me the importance of never jumping too early to conclusions or generalising. Pendulum swings indicate that the trends and adaptations we saw in early lockdown have, in some cases, already been superseded, and long-term solutions require an evolving mindset. How long behaviours remain affected is yet to be answered. It may well be that the 'new normal' is closer to the 'old normal' than we might have

anticipated. I do think that priorities have been re-ordered, structural changes already occurring pre-pandemic have accelerated, while the linkage between all sectors of real estate have fused more closely together.

At Savills, I believe this plays to our strength. Our in-depth experience over 166 years across all sectors is vital as we consider questions of how to re-use land and real estate most effectively for the future. This is clearly illustrated by the continued blurring of the sector boundary between what makes up commercial and residential real estate, as well as the current debate on how companies and their work forces will return to an office environment. Again, generalisation is dangerous, but in some geographies and sectors hybrid working will become more prevalent (p20), with many considering that some roles and functions can be effectively provided remotely.

Early predictions have now been recalibrated and businesses where creativity, human interaction and collaboration are part of the services needed, still regard the office as the vital hub or incubator and have missed the opportunity to interact through the successive lockdowns.

With hybrid working putting greater emphasis on the need for effective home working, many are now placing more value on the quality of their residential accommodation. As markets re-opened worldwide, they have experienced strong demand, driven by a desire for more space and more amenity. This demand has resulted in significant and rapid price increases.

The focus on the home has also fuelled other sectors, and

Priorities have been reordered, structural changes already occurring pre-pandemic have accelerated, while the linkage between all sectors of real estate have fused more closely together

the three that have emerged strongly are 'meds, beds and sheds.' The beds piece is obvious, with greater demand from both occupiers and investors alike whilst affordability and availability will remain major issues, which need urgent engagement and planning.

The meds, or life sciences, as we should describe them, has always been an important emerging sector, and its convergence with technology has accelerated its growth (p62). Investors and developers around the world are comparing the different models which have evolved, to understand both the ingredients and recipe for success.

The sector that undoubtedly enjoyed the most growth during the pandemic is the logistics sector or sheds. The acceleration of online

shopping during the pandemic, the need for greater diversity of supply chains, with inventory requirements on a 'just in time' basis, have fuelled continued occupier and investor demand for more space worldwide. This is highlighting shortages in many regions, albeit now that the retail markets are re-opening we may see this pendulum swing dampen, as consumer behaviour moves back to the physical enjoyment of shopping and leisure activities.

So, what is the future of the office and how should cities adapt to the changing behaviour of their populations? Many office occupiers now realise the benefits a positive environment can give their staff – improving mental health and wellbeing – as well as instilling cultural values and a sense of

belonging. In fact, office demand is recovering strongly in many markets, which will reassure investors. As our outlook for 2022 indicates (p18), offices are the dominant investment choice in more than half of the cities surveyed.

Moving on to how markets may evolve in the future, they will be more greatly influenced by all elements of ESG but, in particular, environmental issues and sustainability, characterised by the physical climate risk faced by cities worldwide (p32), and the growing commitment to green buildings by occupiers and investors alike (p38).

These behavioural forces will be major influences on why some global cities will continue to thrive, and others may lag behind. We have taken a detailed look at this with our Resilient Cities Index (p6). While economic growth is always a primary driver, we are seeing greater emphasis placed on environmental issues, inclusive societies and prioritisation of wellness and access to healthcare – all contributing to a high Index ranking.

I hope that this issue of *Impacts* provides you with food for thought across the sectors. Some early predictions and generalisations on the pandemic's impact on the real estate markets have proved inaccurate and it will be fascinating to see how behaviours evolve. While the tragedy of the pandemic must not be overlooked, the resilience and adaptation we have seen across all global markets has been uplifting, and I am enormously excited to look forward to being able to visit our offices worldwide in the coming months. Virtual does not compete with physical and the human need for interaction. I therefore look forward to seeing many more of you, our valued clients, in person in the very near future.



Tokyo, the highest-ranked
city in Asia-Pacific

Resilience ranked

A city's ability to evolve is crucial. But which ones are best positioned to succeed? Savills Resilient Cities Index assesses 500 cities based on their economic strength, their knowledge economy and technology, environmental resilience and real estate. We explain how gateway cities such as New York, Tokyo and London maintain their status, and why ESG, investment and education are helping cities such as Stockholm, Seoul and Amsterdam climb our top 20 ranking

Words Savills World Research

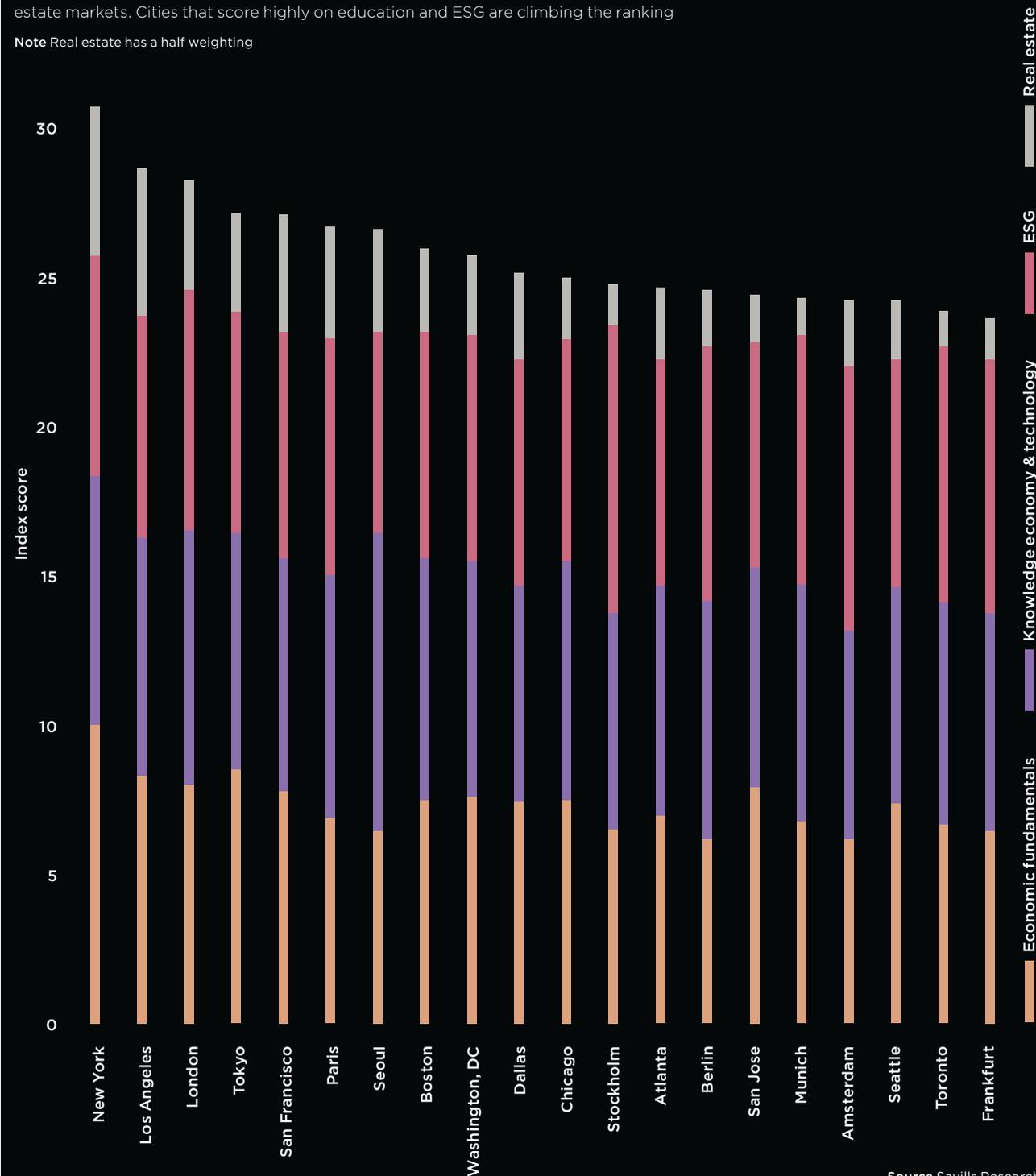


- **Economic fundamentals**
An economy of scale, with high personal wealth and strong demographics.
- **The knowledge economy and technology**
High value-add employment, quality education and innovation in business.
- **ESG**
A society which values sustainable environmental practices, has access to good healthcare, and is inclusive and fair.
- **Real estate**
A liquid and readily invested real estate market.

Savills Resilient Cities Index, top 20

Global megacities dominate the top of the index thanks to strong economies and real estate markets. Cities that score highly on education and ESG are climbing the ranking

Note Real estate has a half weighting



Source Savills Research

The impact of the pandemic has caused some commentators to question the value and role of cities themselves. However, while major cities face immediate challenges as a result of Covid-19, they remain the most important locations for human interaction.

In Chinese cities, and other locations around the world, people have returned to working, shopping and socialising as they did before Covid-19. In the long term, cities will continue as centres of collaboration, innovation and prosperity. Urban areas produce more than 80% of global GDP, according to Oxford Economics. By 2030 that share will rise to 90%.

The Savills World Research team has ranked 500 cities on their economic strength, demographics, the knowledge economy and technology, environmental resilience, as well as the depth of their real estate markets. The best cities in the Resilient Cities Index will be well-placed to adapt to the challenges of the post-Covid-19 environment and the future.

Resilience is inherent in cities: Tokyo, London, Shanghai and a host of others have survived and thrived over many hundreds of years. Cities are evolving to meet the changes brought about by the pandemic and becoming greener, more liveable and more affordable. For example, the concept of the 15-minute city, where residents can live car-free, is gaining traction.

Cities are well suited to rise to the challenge of climate change and are already the most environmentally friendly places to live, work and play. Walkability, public transport and efficient land use mean emissions per person are lower for city dwellers.

Real estate investors continue to target cities, rather than countries. Over time, resiliency will be part of a virtuous circle: the most resilient cities will attract the most investment, which will in turn make them more adaptable to future challenges.

The top of the 2021 Savills Resilient Cities Index is dominated by large cities with deep and liquid real estate markets located in a small number of wealthy nations. New York, Los Angeles and London head the rankings, global megacities with populations above 10 million. Tokyo is the highest-ranked Asia-Pacific city. The largest by population, Tokyo has a huge real estate market and is only behind New York in terms of economic strength. Tetsuya Kaneko, Head of Research, Savills Japan, says: "Tokyo's strengths lie in its status as the largest megalopolis in terms of population and economic size, equivalent to or larger than several European countries."

The top five is rounded off by San Francisco, a global tech hub and a large wealthy city. GDP per capita is more than \$110,000, nearly three times the OECD average. However, not all the highest-ranked cities are so large. A number of smaller European cities with populations under three million are among the most resilient. These cities score highly for their ESG credentials, venture capital investment and the knowledge economy.

Stockholm, for example, scores highly for ESG and research expenditure, while Amsterdam is among the top cities for venture capital investment in mainland Europe, and also scores highly for ESG. "Amsterdam is a liveable city. Distances are small and public transport is well organised. This means a lot of nature reserves and

Resilient City Index ranking and metro area population in millions (m)*



- 1 New York, 19.9m
- 2 Los Angeles, 13.2m
- 3 London, 12.3m
- 4 Tokyo, 38.2m
- 5 San Francisco, 4.8m
- 6 Paris, 12.2m
- 7 Seoul, 9.5m
- 8 Boston, 4.9m
- 9 Washington, DC 6.3m
- 10 Dallas, 7.8m
- 11 Chicago, 9.4m
- 12 Stockholm, 2.4m
- 13 Atlanta, 6.1m
- 14 Berlin, 5.4m
- 15 San Jose, 2.0m
- 16 Munich, 2.9m
- 17 Amsterdam, 2.9m
- 18 Seattle, 4.0m
- 19 Toronto, 6.7m
- 20 Frankfurt, 2.7m

the beach are nearby," says Jordy Kleemans, Head of Research & Consultancy, Savills Netherlands. "This makes Amsterdam very appealing for people who want to work or study in the Netherlands, producing a pool of talent that is attractive to VC investors."

The three German cities in the top 20, Berlin (14th), Munich (16th) and Frankfurt (20th), all score well for the knowledge economy and technology. Berlin scores highly for VC investment, while Munich and Frankfurt are strong in financial services. Marcus Lemli, CEO Savills Germany and Head of Investment Europe, says: "With almost 200,000 students and three globally ranked universities, Berlin houses an outstanding talent pool. Moreover, it has one of the most vibrant start-up ecosystems in Europe. With its diversified economy, Munich is often seen as the safe haven in Germany, while Frankfurt, the nation's banking capital, not only offers a wide range of financial and consultancy services but has a highly diversified and innovative economy."

Despite growing interest from global real estate investors, the twin powerhouses of Asia - China and India - are much further down the index. Lower GDP per capita and poorer ESG performance mean even large cities in these countries underperform their counterparts in the US and Europe. They should rise as they become wealthier and improve their environments.

Indeed, all the cities in the index are resilient and have the potential to improve. For example, smaller, more liveable cities could attract greater investment relative to their size, and compete more evenly with global megacities. Those to watch include Denver, Houston, Phoenix and Philadelphia in the US; Copenhagen, Denmark, Zurich, Switzerland, in Europe; Melbourne and Sydney in Australia and Auckland in New Zealand.

Nonetheless, the world's gateway cities hold their place at the top of the list because of their inherent resilience, which means they are unlikely to be undermined by change. For businesses, agglomeration benefits have not gone away: proximity to competitors and collaborators, and to highly regarded educational institutions remains important.

Source *Population data, Savills Research using Oxford Economics

Below: Paris

REAL ESTATE

Real estate transaction volumes declined dramatically in almost all markets in the year to Q1 2021 compared with the same period the year prior. However, the biggest markets historically remained the largest during this period. All sectors saw a fall in transactions, although industrial and residential proved most resilient, especially with cross-border investors.

In the year to Q1 2021, Los Angeles was the largest real estate market in the world, a status typically held by New York. Volumes in New York fell more over this period than in the other top 10 cities, yet it remained the second-largest metro market.

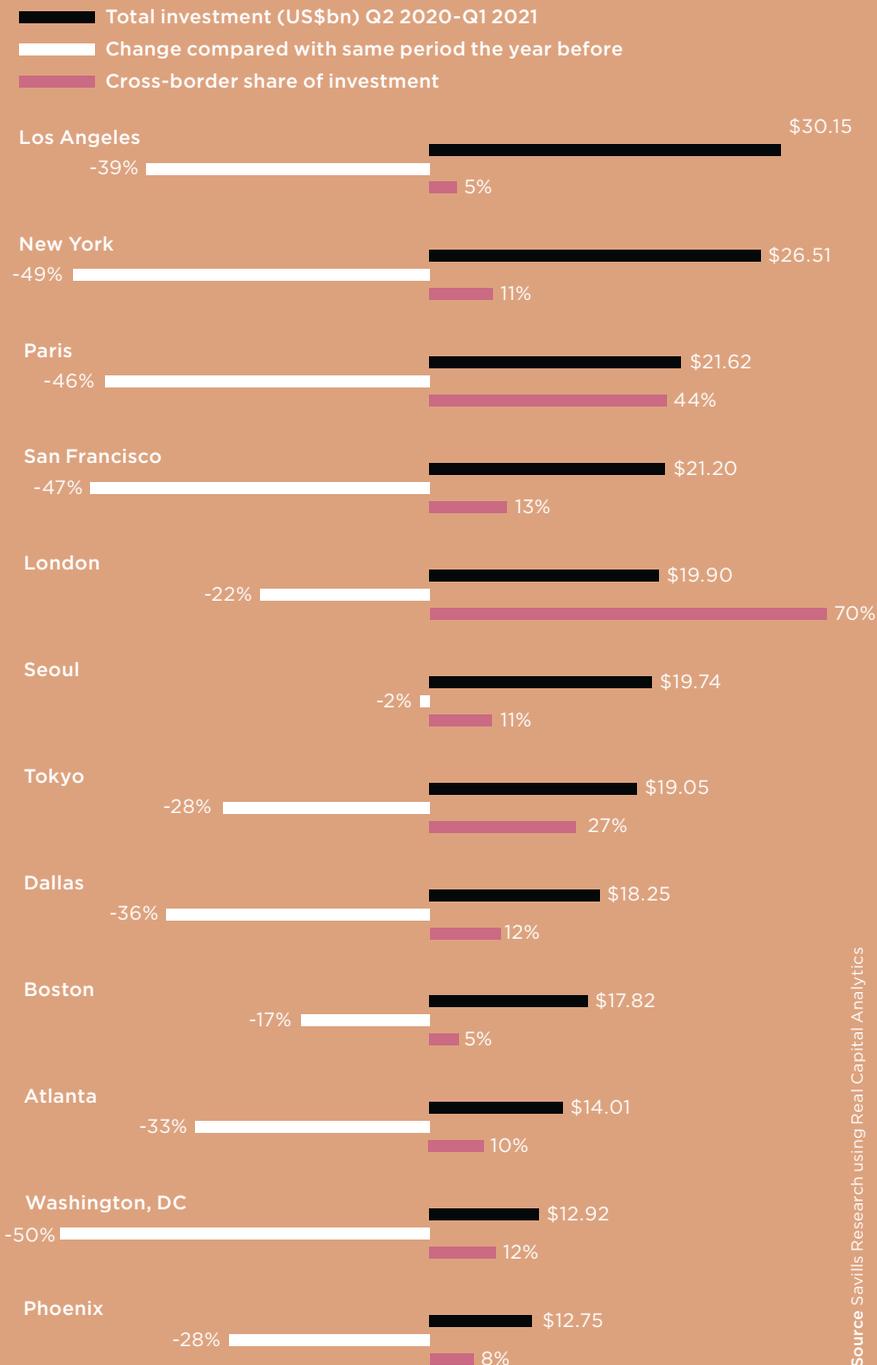
Paris and London are the largest European markets and attract by far the most international investment. Total investment volumes in Paris exceeded those in London for the second year in a row, as the UK market continued to be subdued by Brexit uncertainties. However, London demonstrated its resilience in the face of Covid-19 and Brexit by recording a comparatively small (8%) fall in cross-border investment volumes.

Seoul ranks sixth for real estate, pushing Tokyo into second place in Asia-Pacific. The South Korean capital was the only city in the top 10 to see an increase in investment volumes in 2020 (and a fall of just 2% in the year to Q1 2021), thanks to active domestic investors. South Korea combated the Covid-19 pandemic without a severe lockdown and 2020 GDP fell less than 2%.



Top cities by real estate investment (metro areas)

In the year to Q1 2021, Los Angeles was the largest real estate market in the world, a status typically held by New York



Source Savills Research using Real Capital Analytics

Right: New York, top-ranked for economic strength

ECONOMIC STRENGTH

Big is beautiful when it comes to economic strength. Large populations, high levels of economic activity and consumer spending power boost businesses, as does the attractiveness of a friendly regulatory environment. The top 12 for economic strength is dominated by the US and China, the only exceptions being Tokyo and London. New York, the financial capital of the US, tops this category thanks to its GDP and number of high-income households: there are 1.5 million households earning more than \$250,000 a year.

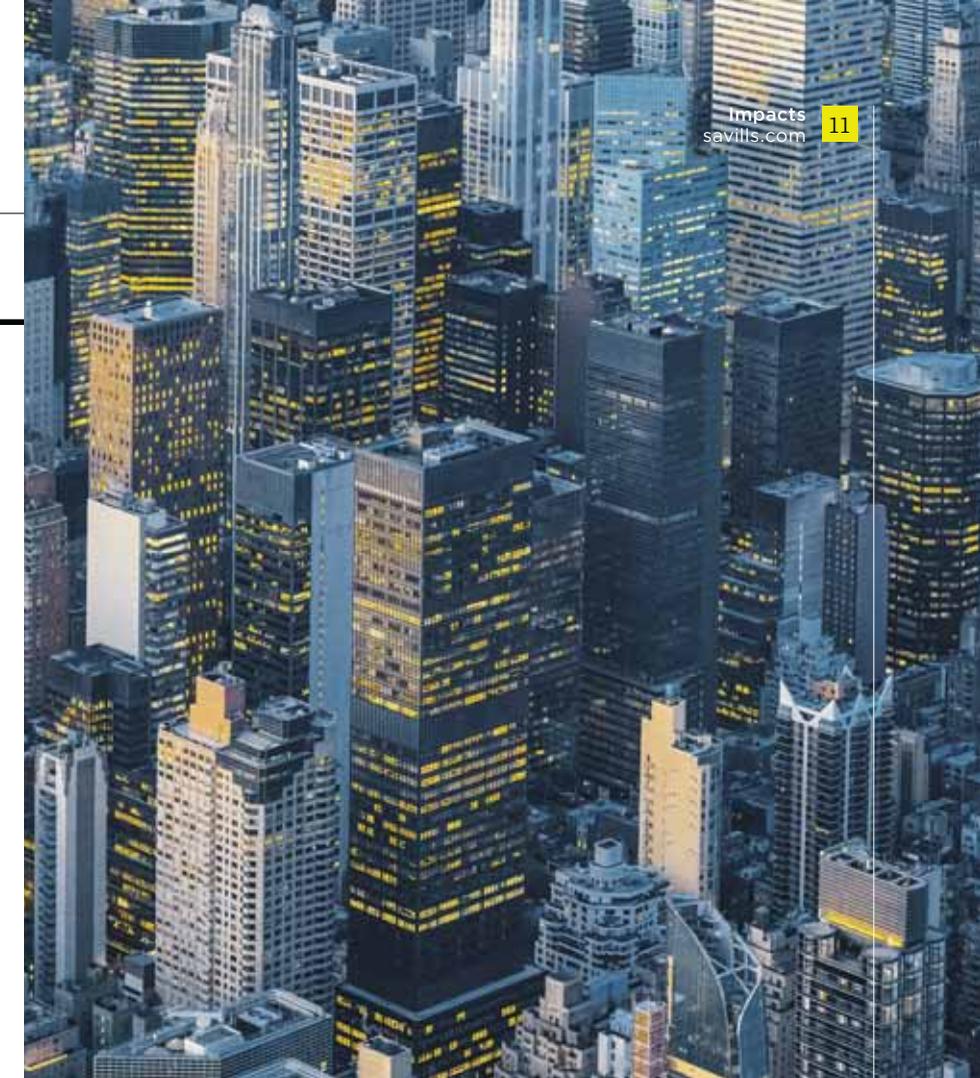
Top cities for economic strength

1. New York, US
2. Tokyo, Japan
3. Los Angeles, US
4. London, UK
5. San Jose, US
6. Shenzhen, China
7. San Francisco, US
8. Shanghai, China
9. Beijing, China
10. Washington DC, US
11. Chicago, US
12. Boston, US

Source Savills Research

David Heller, Senior Managing Director, capital markets, Savills US, says: “The strength of New York City is driven not only by a diverse and dynamic economy, but its appeal as a global gateway city. Home to some of the world’s leading financial and media institutions, New York City is also the second-largest technology market, fuelled by its ability to attract talent. To put it simply, it is where people wanted to be leading into the pandemic, and it is where they will want to be as we emerge.”

London is the only European city in the top 20 – a global financial powerhouse, with a large city GDP, a friendly business environment, high levels of employment and a substantial number of high-income households. “Despite the challenges of Covid-19, central London has continued to see sustained levels of occupier demand with active requirements for office space standing at 8.3m sq ft at the end of Q1 2021,”



says Victoria Bajela, Associate Director, Commercial Research, Savills, London. “It continues to be a key city for the financial, professional, tech and media sectors.”

The home of Silicon Valley, fifth-ranked San Jose has the world’s highest GDP per capita: \$168,000. Another tech-driven city, Shenzhen ranks sixth. The highest scoring city for demographic factors, it attracts young migrants from all over China.

Joey Yuan, Head of Office, Savills Shenzhen says: “A young high-tech hub with increasingly established infrastructure and ample political and economic support, Shenzhen is a magnet for entrepreneurs and young talent. An increasing number of China’s bellwether companies and many multinationals have located or plan to locate their southern China or Greater Bay Area headquarters in the city.”

Indian cities top the list for the cheapest cost of living. They also have youthful, growing populations and strong forecasts for growth. Anurag Mathur, CEO Savills India, says: “Major cities are set for strong GDP growth thanks to skilled workforces, urbanisation, and economic reform. According to Oxford Economics, Bengaluru

will be the world’s fastest-growing major city between now and 2035, while half of the top six cities for GDP growth are in India.”

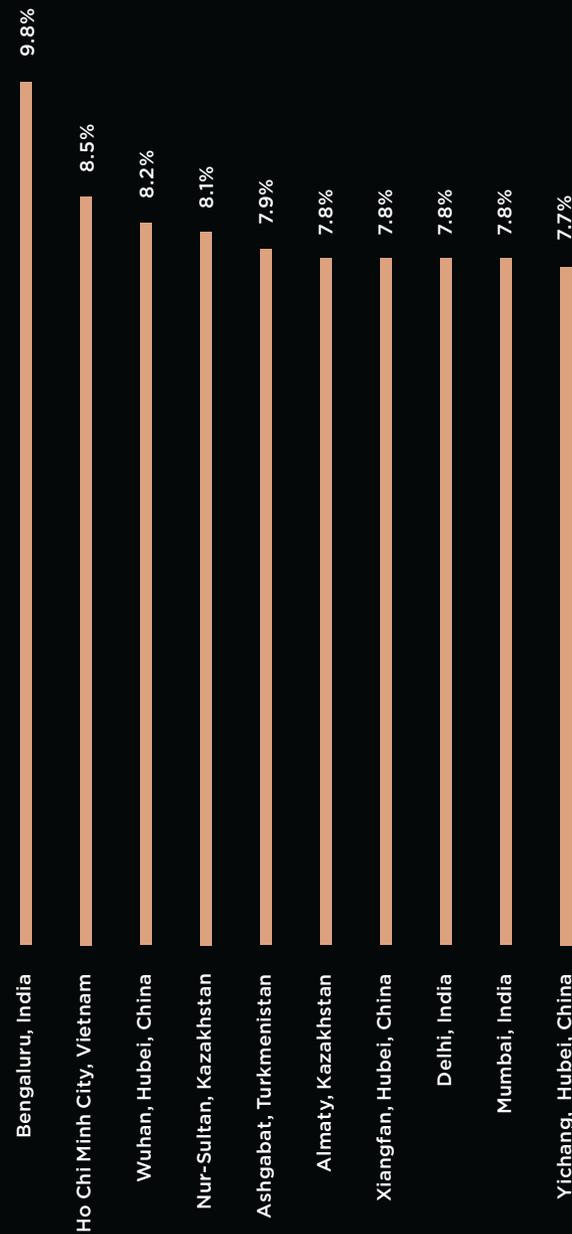
Chinese cities are expected to see strong rises in domestic wealth, coupled with continued GDP growth. Ho Chi Minh City in Vietnam is also expecting rapid GDP growth over the next five years as it develops as a lower-cost manufacturing alternative to China.

Abu Dhabi and Dubai are set to see a boost from migration and an increase in the number of high-income households. Swapnil Pillai, Associate Director, Research, Savills Middle East, says: “The UAE has done relatively well in handling the pandemic and was among the first to open its borders for business and tourism. It has also introduced measures to support and improve the ease of doing business along with making changes to laws allowing long-term residence in the country.”

In five years’ time, the top 10 cities are likely to remain largely unchanged in terms of economic strength. Large, wealthy cities in the US and China, together with London, possess a scale which underpins their attractiveness to investors and occupiers. >

Cities with highest forecast GDP growth (CAGR 2020-2025)

Chinese and Indian cities are expected to see strong economic growth



Note Based on cities in our index with populations over 1 million
Source Savills Research using Oxford Economics

Sustainability is considered to be intrinsically linked with resilience



in renewable energy, with Uruguay and Paraguay getting 100% of their electricity from renewables.

Even before the pandemic, health and wellness was a growing focus for businesses and governments to ensure the wellbeing of their employees and citizens. Responses to Covid-19 have varied across the world: Israel, the UAE and Bahrain were behind Asian nations in containing the virus, but have leading vaccination programmes.

Japan has the longest life expectancy. Tetsuya Kaneko, Head of Research, Savills Japan says: "Japanese health can be attributed to the world-renowned food and cuisine, as well as its universal insurance system and high standards of public health, which have also contributed to controlling the global pandemic."

Health and wellness is increasingly part of sustainability, as the measures taken to improve one tend to affect the other. Cities such as Barcelona and Paris have pledged to pedestrianise parts of the city, which will help meet environmental goals and also improve citizens' health through improved air quality and walkability.

For real estate investors, ESG has moved front and centre of due diligence. Sustainability is considered to be intrinsically linked with resilience. This favours smaller prosperous cities, such as those in the Nordics, which have received significant investment relative to their size. However, larger countries are investing heavily in sustainability: the US has pledged \$2 trillion in renewable energy investment. Cities most at risk from climate change, such as those exposed to rising sea levels, could see their real estate discounted.

More and more nations have committed to become carbon neutral, including China, which set itself a 2060 net-zero target in 2020. More action on sustainability is being taken at the city level, such as Copenhagen's pledge to become the first carbon-neutral capital or Vancouver's intent to use 100% renewable energy by 2050.

Number of top 400 universities in each city*



THE KNOWLEDGE ECONOMY AND TECHNOLOGY

Technology companies have become a major driver of wealth generation. High-value jobs require an educated workforce shaped by a good education system. Seoul tops scores for the knowledge economy and technology. Not only is it home to giants such as Samsung, it leads the world in patents filed per capita. Daejeon, home of Korea's Silicon Valley, is sixth.

Crystal Lee, Country Head, Savills Korea, says: "South Korea's largest conglomerates, which are involved in everything from technology to financial services, are headquartered in Seoul, which means there is a tremendous breadth and depth of knowledge. The Korean education system is very highly rated among OECD nations and technology is integrated with learning."

Top cities for the knowledge economy and technology

- 1) Seoul, South Korea
- 2) London, UK
- 3) New York, US
- 4) Boston, US
- 5) Paris, France
- 6) Daejeon, South Korea
- 7) Berlin, Germany
- 8) Washington, DC, US
- 9) San Francisco, US
- 10) Los Angeles, US
- 11) Tokyo, Japan
- 12) Chicago, US

Source Savills Research

London is second, home to 10 top 400 universities and two in the top 10. It is also accessible to Oxford and Cambridge and forms a golden triangle for the life sciences sector. New York is the highest-ranked city in North America, just ahead of biotech hub Boston, home to two of the world's five best universities. Quality universities and abundant capital mean US cities score highly for VC investment as well as financial and business services employment. In Europe, Paris and Berlin are well placed thanks to strong national indicators: France has

the most broadband subscriptions per person while German citizens have the most years of education.

Chinese cities fare less well than their Western counterparts on education but score highly for VC investment, for which Beijing ranks second and Shanghai ranks sixth, thanks to homegrown tech giants.

China accounted for 21% of all global VC funding in 2019. Beijing alone netted \$83 billion of investment in the three years to September 2020. This investment is set to be a precursor to investment in people and real estate. The growth of China and other Asian nations as major tech players will not just benefit home cities, but major world metropolises. Just as US firms, such as Amazon and Google, have become major occupiers outside the US, so Asian tech firms are set to expand internationally.

The race to develop Covid-19 vaccines brought the life sciences into the headlines, and pharmaceutical and biotech companies are expanding outside their heartlands in the US and UK to other countries including the Netherlands, Germany and India.

Whether their business is biotech or telecoms, firms in the knowledge economy are in a continual war for talent, so cities with strong educational credentials and the presence of major tech firms will continue to top the rankings. Yet cities with affordable living and relaxed lifestyles are emerging as competitors. These include Raleigh, Atlanta, Charlotte and Austin in the US, Cambridge in the UK and Dublin in Ireland.

ENVIRONMENT, SOCIAL AND GOVERNANCE (ESG)

The index rates ESG factors on a national level, as data at the city level is scarce. This puts Nordic nations at the top, scoring highly for use of renewables, food and water security, natural resources and electric vehicles. New Zealand and Canada, the only non-European nations in the top 10, also score well for these factors.

Top countries for ESG

1. Norway
2. Sweden
3. Denmark
4. Finland
5. Iceland
6. Switzerland
7. Netherlands
8. New Zealand
9. Canada
10. Germany

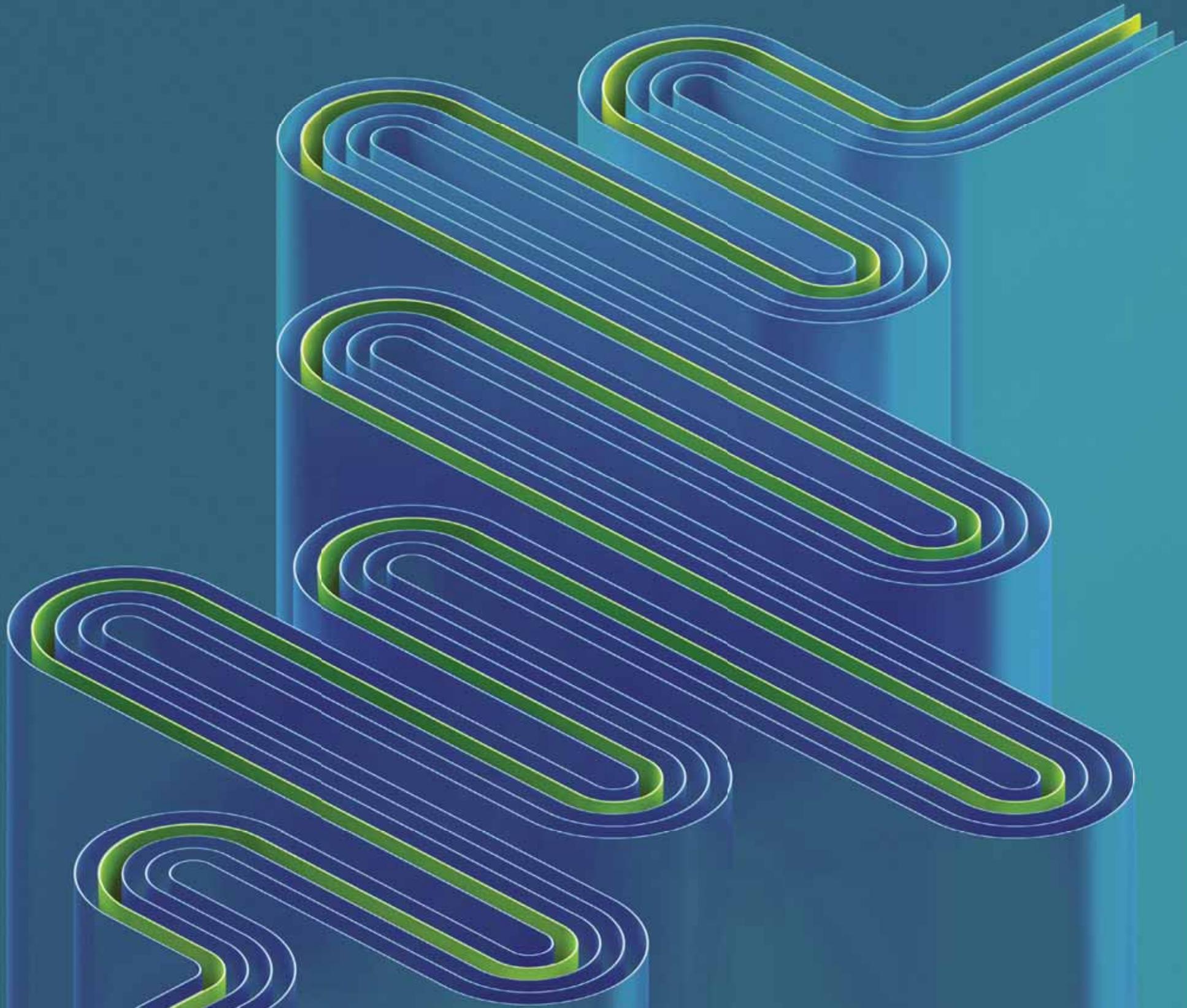
Source Savills Research

European nations perform highly for social and governance factors, such as democracy and transparency. China scores poorly in terms of emissions, hence its 65th place in the ESG rankings. The US scrapes into the top 20, scoring poorly for income inequality and CO2 emissions per capita. However, European nations are not the only ones leading in sustainability. Latin America is the leader

Source *University data, Savills Research using QS University Rankings 2021

Images: Getty

The most obvious
recessionary and
post-recessionary trend
is around risk. And not
just in real estate



PREDICTING THE FUTURE... BY OBSERVING THE PAST

HOW DID REAL ESTATE
MARKETS EMERGE FROM
PREVIOUS ECONOMIC
DOWNTURNS? AND CAN
THOSE EXPERIENCES HELP
STEER US THIS TIME?

Words Mat Oakley, Head of UK and European Commercial Research, Savills

We have got to look at the sectors of the future, not the past. These include multi-family housing, ESG-compliant assets of all types, science and research-focused properties, and data centres

In a 1948 speech, former British Prime Minister, Winston Churchill, paraphrased the philosopher George Santayana, saying: “Those who fail to learn from history are condemned to repeat it.” Economists and real estate researchers rely heavily on looking backwards for comparative periods on which to base their forecasts, though the latest crisis has challenged this methodology – given that it has no precedent in modern history.

Of course, while some commentators are fans of looking backwards, others embrace neologisms and the hunt for the new and exciting. Over the past year, it is these types of pundits and forecasters who have carried the real estate debate, with their rallying cry being that the industry must prepare for a new normal.

My view on the outlook sits somewhere between the two camps. While the circumstances that led to this crisis are unique in modern times (and undoubtedly will have some unique effects on real estate), the key driver of the markets over the next five years will be the fact that Covid-19 drove the world into recession. Thus, an examination of what trends were common coming out of previous local, regional and global recessions should give us a good steer of how things may evolve.

Risk on/risk off

The most obvious recessionary and post-recessionary trend, and not just in real estate, is around attitudes to risk. Generally, recessions are often caused by an overly relaxed attitude to risk, and thus the inevitable post-recessionary trend is to move to a risk-off approach.

This trend can be seen in as diverse areas as the spike in the price of gold in some previous recessions (see page 17), the rise in Covid-19 friendly equities last year, or the swing towards Core assets in the world’s real estate markets.

In 2021, there has already been evidence of this swing occurring, with 71% of the real estate investment deals that have happened globally in the first three months of the year being on Core income-producing assets. Putting this another way, we always see less investor interest in development opportunities immediately after a crisis (more on this later).

What does risk off look like?

In the real estate world, a swing to low-risk investing has always been characterised by a rise in interest in long-leased assets, and a reduction in interest in assets that have voids and are subject to occupational risk.

At a national level, it is also common to see a migration of investors away from regional markets in favour of the capital city. In the UK, for example, London accounted for nearly 70% of all investment activity after the last two recessions (a rise from its normal level of around 50%). Whether this decision is rational is debatable, as while capital cities are always more liquid, they also tend to be the most volatile markets in pricing terms.

Immediately after all of the past three recessions, we saw

a sharp rise in global investment flows into income-producing CBD offices and multi-family housing, sectors that have always been perceived as lower risk in times of uncertainty. There was also a swing away from sectors that emerged from the recession looking over-supplied, with the most common victim of this aversion to risk being retail property.

James Lock, Managing Director of Real Estate at Blackstone, says: “How sectors emerge from a period of economic distress will vary dependent upon the underlying headwinds and tailwinds impacting each. However, our investment approach has always been centred around taking the long view; looking through periods of volatility and investing in high conviction sectors that align with our thematic investment views, and that are experiencing and benefiting from complementary structural change. As such, our attitude to risk will be influenced by near-term recessionary considerations, balanced against a longer-term view.”

As Lock suggests, some trends that were prevalent before the latest crisis hit are being amplified, whether it be the swing from traditional bricks-and-mortar retail to logistics, or a focus on wellness in the workplace. This has pushed some segments of the property market deeper into Core territory, leading to an overwhelmingly common investment strategy across many types of real estate investors in 2021 that is best summarised as ‘beds, sheds and meds’.

Andy Allen, Head of Product Strategy & Development at Savills Investment Management, says: “Often, investors are slow to recognise

the emergence from recession, and cautious of the signals of recovery. We expect Core investors to continue to target, at scale, the durable income that real estate can provide, and Value Add strategies to be polarised towards ‘beds and sheds’ rather than in offices and retail where greater uncertainties prevail. Of course, history tells us that sentiment often overreacts, and this in turn will create opportunity in presently unloved sectors.”

What happens next is fairly predictable. As an increasing number of investors cluster around locations, sectors and assets that are perceived as lower risk, prices start to rise and returns begin to reduce. As one fund manager that I spoke to put it, “our investors soon realise that Core is low-yielding, and as economies recover, the lure of higher returns for higher risk reasserts itself.”

Will things be different this time?

The cause of the latest recession is unique in modern times, so it is not unreasonable to assume that some of the trends that will be prevalent post-recession will also be new. The governmental response to the Covid-19 crisis has also been unprecedented in terms of the volume of fiscal and monetary support that has been committed.

Bill Page, Head of Real Estate Markets Research at Legal & General Investment Management, sees these external factors as important, while suggesting that old ways of property investing should also remain integral to stock selection. He says: “The emergence from this downturn feels different. In theory, property looks to be very good value relative to other asset classes, but the gap between income received and income receivable is challenging many investors – and is unique. Property allocations, alongside other asset classes, will need to be more targeted as investors cannot ride a general wave of recovery. Sector and segment calls, and/or specific investment styles, will become far more important.”

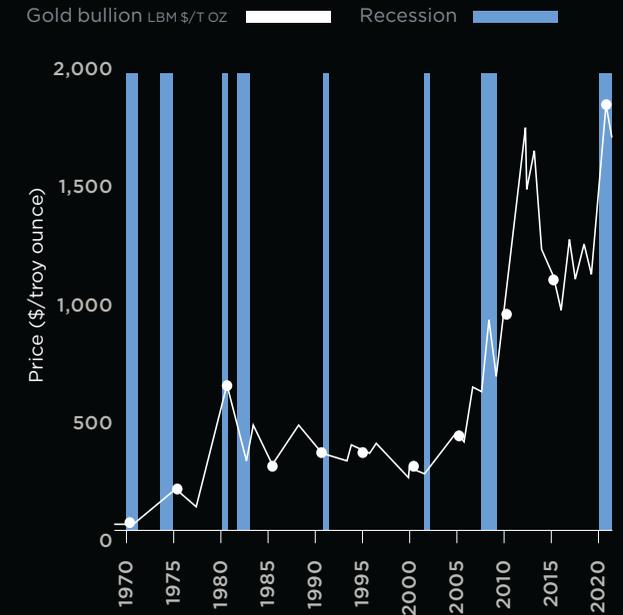
At the start of 2021 it is clear that some investors are questioning whether CBD offices are quite as Core as they have been coming out of previous crises, and I do not expect that this question will be answered until social distancing measures have been completely removed. However, this remains the largest and most liquid part of the global investment universe and this alone is likely to support its position.

Richard Spencer, Partner, Real Estate Investing at Goldman Sachs Asset Management, adds: “In the office sector, tenants and investors will gravitate to best-in-class buildings, offering leading environmental performance, digital connectivity and employee experience. We call this the K-shaped recovery: a growth opportunity in some asset classes and a potential new cycle of value and distress in others.”

New sectors of choice are also evolving from this crisis, and Simon Hope, Head of Global Capital Markets at Savills, suggests that “we have got to be looking at the sectors of the future, not the past”. These include multi-family housing, ESG compliant assets of all types, science and research-focused properties, and data centres.

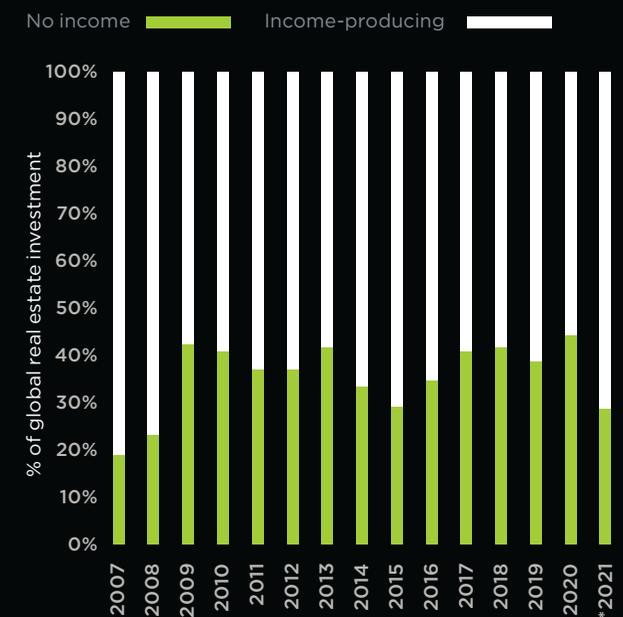
Finally, there is the question of development, the part of the real estate universe that normally is quietest in post-recessionary periods. I believe that this will bounce back more strongly this time around, driven by a global desire for better places and spaces, as well as the more normal need to repurpose assets that the recession and structural change have made surplus to requirements. This is likely to be a less competitive part of the global real estate environment over the next 12 months, but also has the potential to deliver the highest returns.

The spike in the price of gold during previous US recessions



Source Savills Research using Refinitiv Datastream

Global real estate investment always swings to Core post recession



Note *Jan-Apr 2021 Source Savills Research using Real Capital Analytics

1 Outlook for yields

Most Savills research heads expect prime yields to remain static over the 12 months to Q2 2022, but there are exceptions. For industrial and residential, more respondents expect yields to move in than to remain static or rise, reflecting investor interest in these sectors. Offices show resilience from an investor perspective, with 97% of our researchers anticipating yields to remain static or fall.

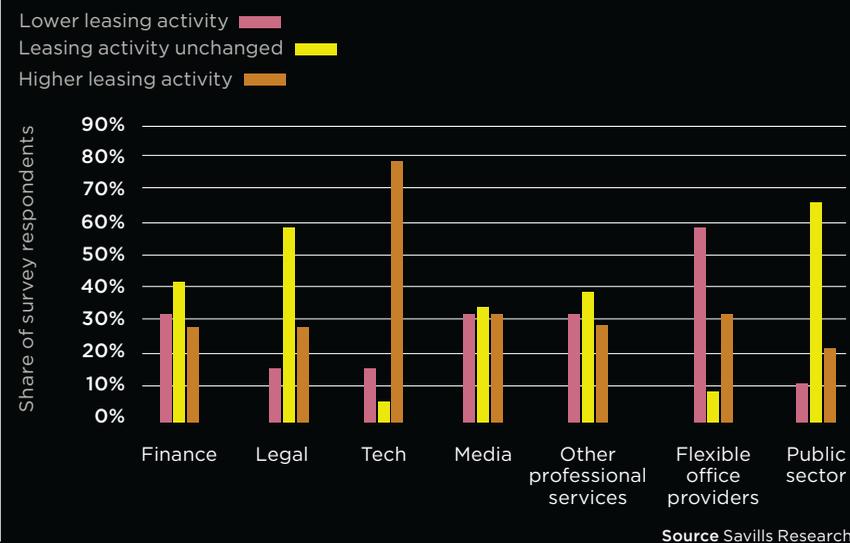


FIVE FOR 2022

Our survey of research heads across Savills global network provides a view on 2022 for investment, leasing and the importance of ESG across 36 cities globally. The findings point to the resilience of real estate in an era of accelerated change and evolution, rather than revolution, in the wake of the pandemic

Words Paul Tostevin, Director, Savills World Research

Office leasing activity compared to pre-pandemic levels (2022 vs 2019)



2 Tech occupiers to drive leasing activity

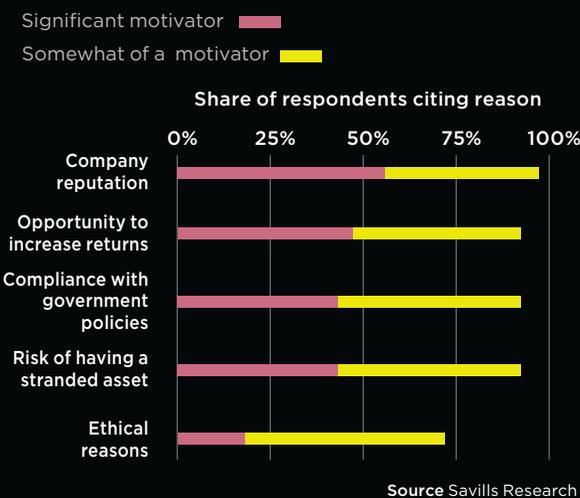
Savills research heads expect to see office leasing activity comparable with pre-pandemic levels by 2022 – but this varies by city. Those in emerging markets such as China, Indonesia and Vietnam are the most bullish on leasing activity, spurred by strong economic growth and a slower shift to flexible working.

Tech occupiers are expected to lead demand across the board, with 79% of respondents anticipating higher leasing activity than in 2019. In spite of embracing flexible working practices, the office will remain integral to tech companies.

3 SUSTAINABILITY MATTERS

75% of Savills research heads indicated that sustainability is an important consideration for investors. Cities in Asia-Pacific dominate those where it is not yet deemed important, such as Hong Kong, Tokyo, Jakarta and Seoul. Given the significance of the ESG agenda, it is unlikely to be long before they do. Company reputation is the strongest motivation behind sustainable investment, cited by 54% of respondents as significant, while 46% indicated the opportunity to increase returns was also an important motivator.

Motivations for sustainable investment



4 Share of international capital to rise

Investment is predicted to become more international as travel restrictions ease. In 2022, research heads expect, on average, **47% of all investment to come from international investors** (of which just under half from neighbouring countries).

Note Average across respondents Source Savills Research

5 Offices rule, beds and sheds in demand

Offices, the largest real estate sector, will remain in demand. In more than half of cities surveyed, offices are expected to be the dominant asset class for investment in 2022. In Shenzhen, Beijing, Guangzhou and Seoul, 60% of all investment is expected to flow into this sector.

Logistics and residential are the next top picks as investors pivot to 'beds and sheds' strategies, with investors in North America in particular expected to favour residential, the world's biggest market for investable product in this space.

Dominant asset class for investment, for selected cities, in 2022

	Region	Dominant sector for investment in 2022	Predicted % of total investment in 2022
Beijing	Asia-Pacific	Office	60%
Guangzhou	Asia-Pacific	Office	60%
Shenzhen	Asia-Pacific	Office	60%
Seoul	Asia-Pacific	Office	60%
Delhi	Asia-Pacific	Office	55%
London	Europe	Office	50%
Shanghai	Asia-Pacific	Office	50%
Hong Kong	Asia-Pacific	Office	48%
Singapore	Asia-Pacific	Office	40%
Tokyo	Asia-Pacific	Office	40%
Warsaw	Europe	Office	40%
Dubai	Middle East	Logistics/Residential	40%
Berlin	Europe	Office/Residential	35%
Madrid	Europe	Office	35%
Sydney	Asia-Pacific	Logistics	35%
New York City	North America	Residential	35%
Los Angeles	North America	Residential	35%
Ho Chi Minh City	Asia-Pacific	Office/Logistics	30%
Kuala Lumpur	Asia-Pacific	Logistics	30%

Source Savills Research

Longer commute times could induce workers to prefer hybrid working as an alternative to daily commuting

Covid-19 and the city-by-city shift to hybrid working

Some companies are considering a hybrid combination of work from home and in the office. But where might this work best? Savills Hybrid Working Index analyses 21 global cities to assess how quickly each could embrace this transition

Words Paul Tostevin & Kelcie Sellers, Savills World Research

The pandemic has had many effects on the office market and people's working lives. Savills Hybrid Working Index analyses employee- and employer-focused factors to examine which cities could make a transition to hybrid working – a mixture of office and remote working – more rapidly. The shift to hybrid working is not a zero-sum situation. Most workers want to be in the office at least some of the time, and most firms are likely to mandate a degree of attendance to ensure mentorship for newer and younger employees and to boost creativity and collaboration among their employees. There are roles that are not suitable to be carried out from home in the long term: some forms of banking, for instance, which are subject to oversight and scrutiny which can only take place in an office environment.

We have developed an index to assess the factors that may influence the future balance between office and hybrid working. We look at employee-driven factors, such as the size of people's homes and commute times, as well as employer-driven factors, such as the cost and efficiency of offices, and workplace culture.

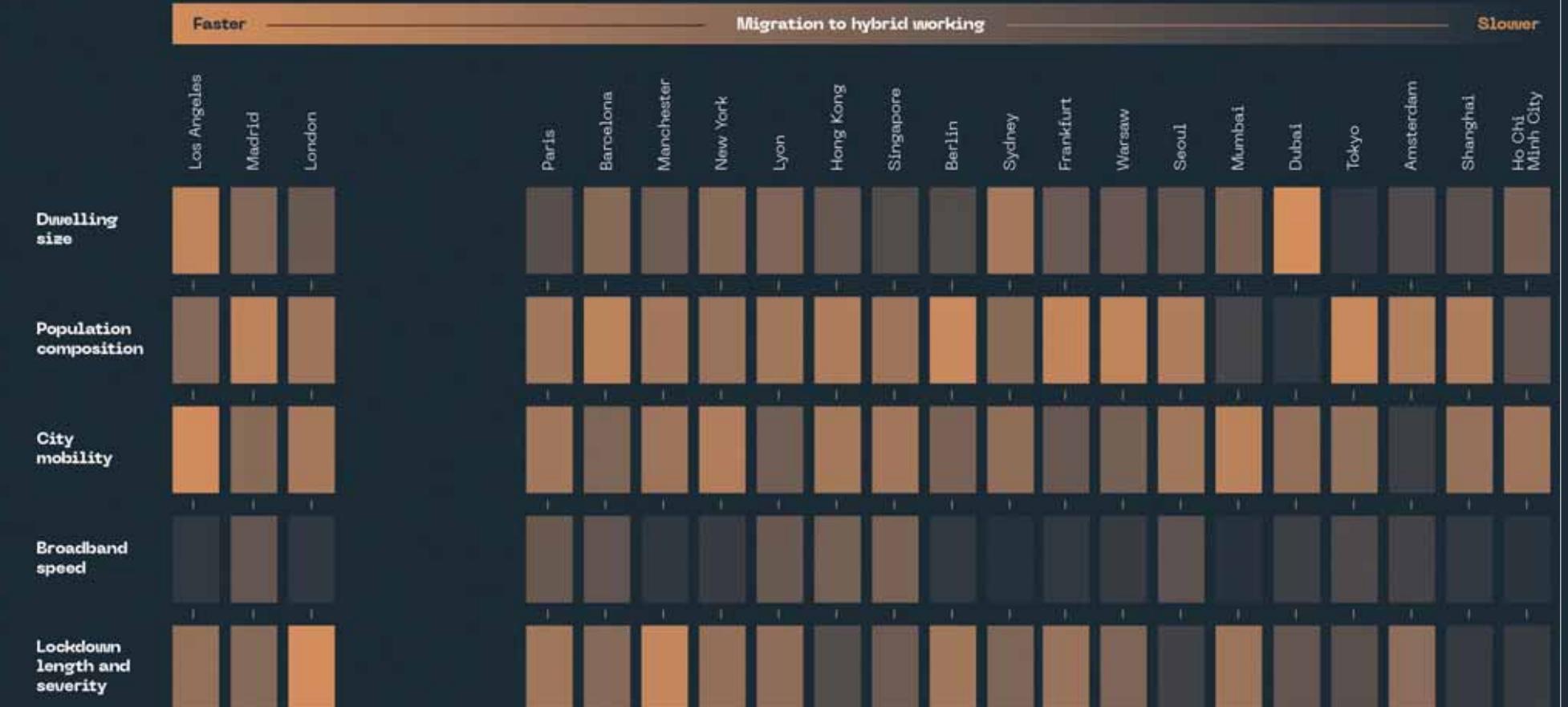
Hybrid Working Index: the employee perspective

Here, the key factors that may influence the adoption of hybrid working are: the size of homes, population composition, ease of commuting, broadband connectivity and length of lockdown

- Larger homes make it easier to provide dedicated space for homeworking. Locations such as Dubai and Los Angeles score highly on this indicator.
- Younger populations or those with smaller household sizes would be more likely to seek interaction and mentorship from the office environment. A location like Mumbai, with 50% of its working age population under 35, may see a slower shift to hybrid working as a result.
- Longer commute times by car and public transport could induce workers

to prefer hybrid working as an alternative to daily commuting. This may be an incentive for hybrid working in Los Angeles, New York and Mumbai, which all have relatively long average commutes. Cities such as Lyon, Berlin and Amsterdam, where it's easier to go into the office because of comparatively shorter commutes (often by bike), might find the office remains the most effective place to work.

- Broadband speeds and digital connectivity are critical to working remotely. Faster broadband speeds could give workers more incentive to pursue hybrid working as they aren't reliant on the fast and reliable connectivity an office environment offers. Singapore leads the pack in this respect.



KEY: EMPLOYEE PERSPECTIVE	Category description	Faster migration to hybrid working	Slower migration to hybrid working
Dwelling Size	Average dwelling size in sqft	Larger homes	Smaller homes
Population composition	Working population % under 35, average household size	Older population (balancing care needs), large household size	Younger population (seeks interaction & mentorship), small household size
City mobility	Public transport and driving commute times, bicycle usage	Longer commute, less bicycle usage	Shorter commute, more bicycle usage
Broadband speed*	Average download and upload speeds for fixed broadband	Higher broadband speeds	Lower broadband speeds
Lockdown length and severity	Length of lockdown and degree to which office use was impacted	Longer lockdown (habits ingrained), greater impact on office use	Shorter lockdown, less impact on office use

Note *Half weighting Source Savills Research

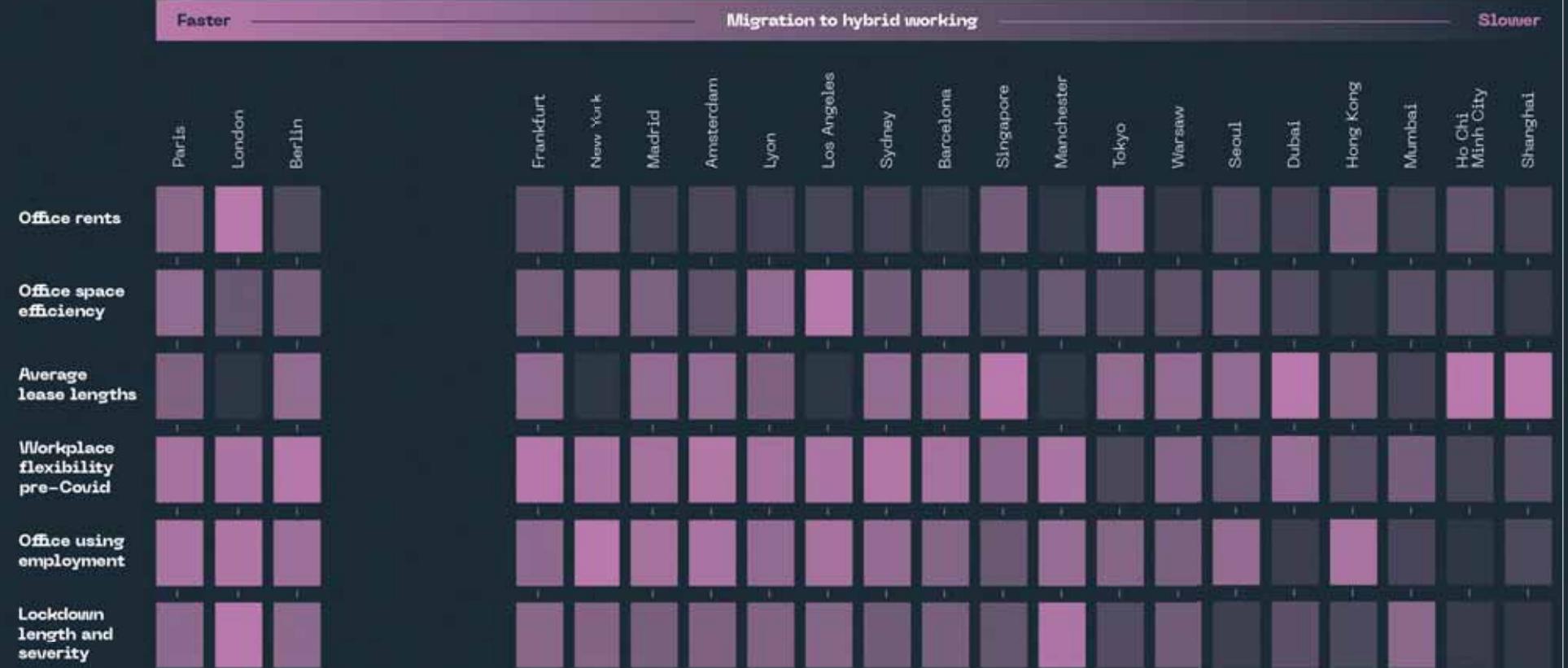
What companies are saying about hybrid work intentions



Note These intentions are correct as at 21 May 2021

Five key takeaways

- In general, long lockdowns meant extended periods of homeworking in the West, notably in the UK, US, Germany and France, giving employees a longer 'trial' of working from home. Not all lockdowns were equal. For example, most German offices remained open during their lockdowns. Asian cities experienced much shorter lockdowns (if at all) and some – notably in China – returned straight to full-time office working.
- Large homes and long commutes make sprawling Los Angeles ripe for hybrid working from an employee perspective, though comparatively low office costs, long leases and a diversified economic base mean employer incentives to cut space may be lower than some other cities.
- From an office occupier (or company) perspective, Paris, London, Berlin, Frankfurt and New York are primed for a faster transition to hybrid working, given comparatively high costs, already flexible working practices, and extended lockdowns.
- Smaller cities are likely to see a slower shift to hybrid working, given shorter commutes for employees and lower costs to office occupiers. Madrid ranks above compact Barcelona for a potential hybrid shift, London above Manchester.
- A less flexible working culture in Mumbai, Shanghai and Ho Chi Minh City mean that any transition to hybrid working may be slower, while efficient use of space (higher office densities) makes the office cost-effective to occupiers – though changing employee expectations may challenge this in the longer term.



Hybrid Working Index: the employer perspective

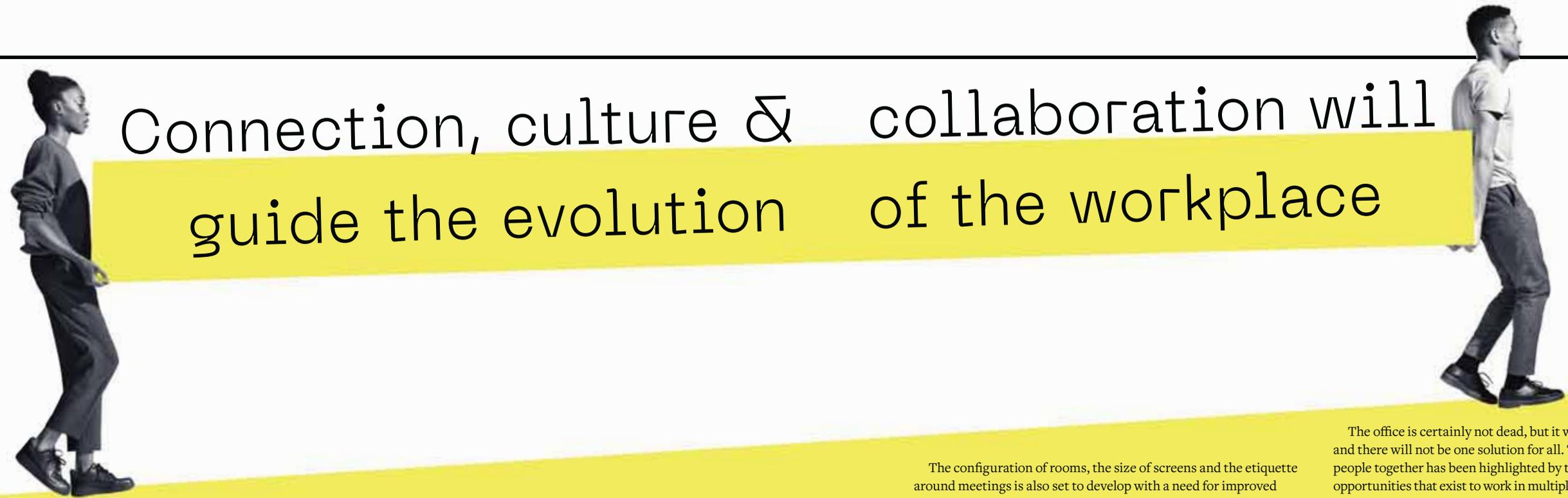
The cost and efficiency of offices, workplace culture, lockdown length and the nature of office-using employment may influence the adoption of hybrid working.

■ While a push for efficiencies in the use of space prior to Covid-19 meant fitting in more employees, employers may now be looking to organise space differently, with a greater emphasis on collaborative places and more room per employee. This could offset any shedding of space where hybrid models are adopted. Locations such as Paris, London, Tokyo and Hong Kong have higher office rents, which could prompt firms to examine a hybrid working strategy.

- Markets with shorter lease lengths could result in more agile decision-making among firms which aren't locked into long lease terms and could promote a quicker shift to hybrid working. Longer lease lengths in the US and UK could see firms slow any hybrid working shift as companies are tied to their office spaces for longer periods.
- Work cultures pre-pandemic will also play a role in the shift to hybrid working. Less flexible working culture in Shanghai, Hong Kong, Tokyo and Ho Chi Minh City mean that any transition to hybrid working will be slower.
- Long lockdowns, notably in the West, have shown that hybrid working is possible, but it has also highlighted that culture can be eroded if people do not have the opportunity to come together.

KEY: EMPLOYER PERSPECTIVE	Category description	Faster migration to hybrid working	Slower migration to hybrid working
Office rents	Office rents in USD per sqft	High office rents	Low office rents
Office space efficiency	Office sqft per employee	Less efficient use of space (lower density)	More efficient use of space (higher density)
Average lease length	Average lease term in years	Shorter leases (easier to shift strategy)	Longer leases (harder to shift strategy)
Workplace flexibility pre-Covid	Businesses with flexible working policies pre-Covid, business culture flexibility	Flexible working practices common pre-Covid	Flexible working practices less common pre-Covid
Office using employment	Proportion of total employment working in offices	Larger proportion of office using employment (more office workers)	Smaller proportion of office using employment (fewer office workers)
Lockdown length and severity	Length of lockdown and degree to which office use was impacted	Longer lockdown (habits ingrained), greater impact on office use	Shorter lockdown, less impact on office use

Source Savills Research



Connection, culture & collaboration will guide the evolution of the workplace

The need to bring people together and provide opportunities to work in multiple locations will shape the future of the workplace. Companies will need clear goals to make a successful transition that provides synergy between employer, employee and the goals of the organisation

Words Yetta Reardon Smith,
Associate Director, KKS Savills

We've all learnt from the work-from-home experience but, ultimately, most companies agree that culture can be irretrievably eroded if people do not have the opportunity to come together. For employees, the return to the office is also about the need to get back to something that is recognisable; to regain a sense of who they are and to belong to a community again – whether that's corporate or personal.

For companies, this transition is when they need to be absolutely clear about their goals, their aspirations and policies, and the need to shape the workplace around them. This is a critical time for companies to manage the adjustment and support behavioural change for employees.

A responsive strategic framework can help a business demonstrate the value that a dynamic workplace contributes to any organisation; it can meet the main challenges of aligning the physical and digital workplace with its people.

RESETTING THE BALANCE

Companies need to think about three aspects. First is flexibility, and how to support that in the office. Second is managing the initial return to the office and making sure that people perceive the workplace to be safe and prepared, and that their needs are being met. The final factor is risk: the risk of a two-tier culture with flexible working for those in and out of the office; the risk of cybercrime with working at home; and the risk of not managing the change associated with this transition.

Flexibility should be embedded in the office set-up. Workers need a choice of work settings – they are coming into the office to be with people so that needs to be fostered in. In addition, they will need quiet spaces and focus spaces. For convenience, employees will now want to combine being in the office for meetings with areas that mirror the focus of the work-from-home environment.

Virtual calls will continue in the office environment, so companies will need to manage their meeting room strategies or they will find themselves in a position where everybody is at their desk with headphones on or talking over each other.

The mix in the office between virtual and in-person has to eliminate presenteeism. Pre-pandemic, those people who were not physically at work suffered as they were usually a minority. This will change.

The configuration of rooms, the size of screens and the etiquette around meetings is also set to develop with a need for improved acoustics to minimise disruption and curated backdrops to engage with virtual images. There are many furniture solutions on the market that will allow minor reconfiguration in the short term.

AGILE WORKSPACES

The likely midweek rush from Tuesday to Thursday will need to be managed by implementing team policies about who is in to cover the week, but also to create the 'buzz' we crave as social beings. Flexible solutions can support this busier period. Bigger meeting rooms can be created midweek for large team meetings, while screens and dividers can devise smaller settings for quieter days. Companies must be aware that wider corridors and circular motion flows around amenity spaces are also important to office design.

While settings should balance needs, employees should use space considerately, thinking about what they are going to be doing and using it appropriately. This requires planning and behavioural change.

MANAGING EXPECTATIONS

Management of how the office is to be used is vital. People respond to rules, and companies will have to consider what is the right model for them if they are adopting different working environments. If people understand what is expected, navigating the new workplace will be less stressful. They can plan their tasks and focus on what matters to the organisation and themselves.

Companies also have to remember that they are not going to get it right first time. This is going to be an evolution and 2021 is the year of transition. The human aspects of the pandemic have been huge. Companies must be mindful that each person will have had different experiences. Businesses should see how people are responding and make intelligent decisions about adapting the workplace, ensuring that those both in and not in the office, do not feel exiled.

The office is certainly not dead, but it will definitely change and there will not be one solution for all. The need to bring people together has been highlighted by the pandemic, as have the opportunities that exist to work in multiple locations, delivering solutions that can work individually and collectively. Unsurprisingly, there will be greater hubs for collaboration and innovation in a flexible environment, providing synergy between the employer, the employee and the commercial goals of the organisation.

The physical workplace creates a vital ecosystem for people to thrive

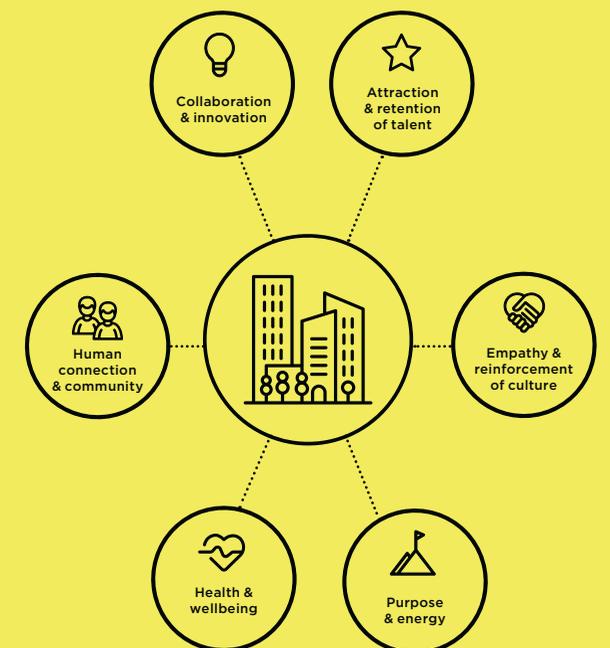


Image: Getty

THE WORLD AT WORK

The pandemic has revolutionised the way people view their office across the globe. We look at how office life is evolving in China, the US and France



USA

Hybrid working is expected to have a significant impact as US cities emerge from pandemic restrictions. “Pretty much everyone is looking at some form of a hybrid workforce within the dynamic of how they are going to operate,” says Rebecca Humphrey, Workplace Practice Group Leader, Savills North America. “But the complexity of that varies significantly based on that company, their culture and where they’re located.”

Despite the options, the general view is that net levels of space will broadly stay the same, as two or three days in the office will likely become the norm.

Lines can’t even be drawn between so-called old- and new-economy sectors. “Companies within financial services that are in growth mode, targeting entry-level employees, will need to consider hybrid working, while an established financial

services company that is not growing as much has more flexibility,” says Kevin Kelly, Senior Managing Director, Savills.

Meanwhile, tech companies that have more publicly promoted home working are putting down roots. “We’re also still seeing tech companies lease large amounts of space in key markets through this,” says Sarah Dreyer, Head of Americas Research. “They’re definitely saying a lot about flexible hybrid models, but also taking a lot of nice space in key markets on the other hand.”

One broader impact of having more agile workers might be an increased focus on relocating outside of big cities such as New York, San Francisco and Los Angeles. “This will reduce costs as workers struggle to keep up with big city living costs,” says Kelly. Popular routes of migration include California to Texas, and New York to Florida.

China

In China, the pandemic has had little impact on office life. A much shorter lockdown and a company leadership style that favours presenteeism from employees saw office life bounce back quickly.

“Most people want to come back into the office,” says James Macdonald, Head of Savills China Research. “I think there’s also a sense that you are more likely to get promoted or you can only show your worth if you’re there visibly in front of your boss as well.”

This approach is aided by good public transport, shortening commutes in the main cities, and the inability to work well from smaller – sometimes shared – living arrangements.

That said, Chinese cities still face some of the underlying structural changes that, in other countries, have been accelerated by Covid-19. “Some industries where employees spend a lot of time out of the office with clients or on projects – construction, engineering

firms, consultancy firms – are looking at hybrid models or more hotdesking,” says Macdonald. China also experienced faster adoption and cultural acceptance of tech solutions such as facial recognition and QR code check-ins at offices, facilitating a speedier return.

The reality is that the pandemic has also had a significant economic impact, which is causing companies to reduce property costs. They are doing this by using space more efficiently or considering cheaper decentralised locations. For example, Shanghai has more than 20 sub-markets, and others being built, often with millions of square feet of offices creating new business communities. “The need to have that 10-minute walking distance to go meet your client is not always necessary given the greater adoption and convenience of online meetings,” says Macdonald. “You can be a little bit further away, but still in the same city, for those more important in-person meetings.”

“China experienced faster adoption of solutions such as facial recognition and QR code check-ins at offices”

“In Paris, around 84% of employees wish to make more use of teleworking in the future”

France

In Paris, when it comes to teleworking, or remote working, there appears to be a meeting of minds between workers and their bosses. Around 84% of employees wish to make more use of teleworking in the future, while 87% of corporate decision-makers plan to increase its use.

These results, from a panel of respondents from both sides conducted by the Savills Research team in Paris, focused on the high value-added services sector. However, they are seen as indicative of the general impact of the pandemic on working patterns in the city.

“Working from home will be obviously more widely adopted than before the crisis,” says Cyril Robert, Head of Research France – Commercial, Savills. “It will not be the main solution, but there is a desire from both sides. We will see how it will be translated in the facts, but I think it will likely be two days per week.”

Robert says there will probably be a consequent impact on how office space is used. It looks to be possible

to reduce the number of workstations by 25-40%, but overall space is expected to be less heavily impacted as more space is allocated per person. Employees are also expressing the desire for more natural light and access to outdoor space, which is not always the norm in Parisian offices.

Paris’s future office landscape could also be affected by City of Paris climate-led initiatives. Both directly, with targets for green buildings, but also more indirectly, with planners mulling the 15-minute city concept where people can find all the amenities they need to work and live in their neighbourhood.

“That’s a long-term trend that is more difficult to imagine at this time,” says Robert. “For instance, for a big firm, it means you don’t have one office building where everybody is able to meet, but you have several offices where people are free to go to work or not. That means a total revolution in terms of how organisations work.”



Image: Getty

A new place to call home

Our seven experts discuss how shifting priorities and lifestyle choices are affecting residential real estate markets globally

The pandemic has brought about a possibly permanent shift in our view of home. Despite the new love affair with the coast and the countryside, the conviction for most remains that the city lights will draw us back, but that we will wish to change the way we live in the metropolis. The walkable urban lifestyle seems set to be the new ideal. In the 15-minute city, education, entertainment, healthcare and work would all be within a 15-minute trip from home on foot or by bike. There's also demand for more space.

Housing markets around the world have been remarkably resilient to the economic turmoil caused by the pandemic. Property prices in 2020 increased 19% in Auckland, 14% in Seattle and 11% in Berlin (see index below). Key to this resilience and future growth, on top of the renewed passion for our homes, has been the mix of government policy and central bank measures. These seem likely to remain in place.

But what unfolds after the global vaccine roll-out, the end of lockdowns and the resumption of international travel? Our accounts of the pandemic highlight lessons learnt during the time of Covid-19 and which changes are likely to last.

" Prime central London was more reliant on the domestic market than usual but transactions were robust "



KATY WARRICK, LONDON
Head of London Residential Development Research, Savills
London's global appeal continues. Despite talk in the UK of the capital losing its shine as a result of the pandemic, that's not the global perception, where people prize things like the education here. We wait to see what Brexit means for the City of London, but there has been a growth in industries such as fintech and green finance.

When the UK market reopened in May 2020, the new build market continued to attract international interest. People were happy to buy properties of under £1 million via a virtual viewing.

In the second-hand market, suburbs such as Wimbledon, Richmond and Wandsworth have outperformed. Prime central London was more reliant on the domestic market than usual but transactions were robust, with £5 million+ sales in 2020 at their highest for four years. This market is expected to grow 7% in 2022, driven by demand from those who were unable to travel.

Across London, supply remains an issue. Developers got used to new ways of working and continued to build. But completions in 2020 were 10% lower than in 2019 as a result of the disruption in the supply of materials. In 2021, starts on sites are dropping, a big problem given the commitment in City Hall's plan to deliver 52,285 new homes a year. **London 2020 price growth: 3.6%**



MAURICIO UMANSKY, LOS ANGELES
CEO and founder, The Agency (Savills associate)

Tastes shifted during the pandemic as home became the centre of the universe. Major cities will draw people back to their beating hearts, but the search for a bigger backyard or room to roam has caused a tectonic shift in inventory and pricing. During the pandemic, sand, surf, quality schools and a walkable lifestyle drew people from the East Coast, Greater LA and Northern California to Venice, Playa del Rey and the Marina. Malibu had a 104% increase in the sale of single-family homes. As international travel resumes, demand could position LA for a record-breaking year. Video content will still be key. In 2019, our Instagram videos would receive about 5,000 views. At the end of 2020, one property had more than 150,000. Views translated into contracts that were delivered. **Los Angeles 2020 price growth: 10.0%**

Worldwide house price movements for 2020 (correct as of 19 May 2021)	22% Wellington, NZ
19% Auckland, NZ	
14% Phoenix, US Seattle, US	
13% San Diego, US	
12% Cleveland, US	
11% Boston, US Berlin, DE Tampa, US Rotterdam, NL	
10% Glasgow, UK Copenhagen, DK New York, US Charlotte, US Detroit, US Minneapolis, US Los Angeles, US Portland, US Washington, DC, US	
9% Vienna, AT Montreal, CA Miami, US Denver, US Brasilia, BR San Francisco, US Atlanta, US Hangzhou, CN Sofia, BG	



ALEX SHATALOV, MOSCOW
CEO, Savills Russia

The prime market is performing very well and I suspect this will continue. There is a belief that property provides the best returns. The mainstream market is also active, partly because of a state-sponsored mortgage support programme, with loan rates of 6-7%. For other borrowers, the rates are 10-11%. The imposition of income tax on bank deposits has also helped the buying spree.

The market was quiet in April and May last year, but when it restarted in June, the pace immediately picked up. Sales in the prime market in 2020 were 11% up on 2019, with about 600 deals in the \$1 million+ sector.

In Moscow, most properties are flats. There has been increased demand for those with extra space as more people are working from home. During the first weeks of lockdown, there was a spike of interest in country house rentals from people fleeing city centre flats. The smartest and most popular neighbourhoods for high-end residential are Khamovniki, Patriarch's Ponds and Ostozhenka. A new up-and-coming area is Zamoskvorechye, in the centre beyond the Moscow River. **Moscow 2020 price growth: 4.8%**

" Sales in the prime market in 2020 were 11% up on 2019, with about 600 deals in the \$1 million+ sector "

" 2021 has seen an unprecedented influx of international HNWI buyers seeking out luxury second homes in prime locations "



STAN ENNOR-GLYNN, DUBAI
Director, International Residential Sales, Savills Middle East

Since coming out of lockdown in the early summer of 2020, there has been a distinct movement of established UAE residents from apartments in the more urban areas to villas and townhouses in gated communities. We have also seen a surge of first-time buyers and end-users choosing to own their home over renting for the foreseeable future – the UAE has previously been considered a transient hub of employment, but there is a shift to a longer-term view. 2021 has seen an unprecedented influx of international HNWI buyers seeking out luxury second homes in prime locations and noteworthy numbers of Europeans choosing to base themselves and their families in Dubai. **Dubai 2020 price growth: -6.4%**

- 8%** Dallas, US
- Quebec, CA
- Hyderabad, IN
- Las Vegas, US
- Oslo, NO
- Reykjavik, IS
- The Hague, NL
- Frankfurt, DE
- 7%** Manchester, UK
- Chengdu, CN
- Chicago, US
- Vancouver, CA
- Vilnius, LT
- Milan, IT
- Kiev, UA
- 6%** Budapest, HU
- Stockholm, SE
- Zagreb, HR
- Birmingham, UK
- Shanghai, CN
- Osaka, JP
- 5%** Munich, DE
- Guangzhou, CN
- Paris, FR
- Athens, GR
- Canberra, AU
- Nanjing, CN
- Wuhan, CN
- Singapore, SG
- Moscow, RU
- Edinburgh, UK
- 4%** Helsinki, FI
- Perth, AU
- Brisbane, AU
- Sao Paulo, BR
- Adelaide, AU
- Sydney, AU
- Riyadh, SA
- London, UK
- Amsterdam, NL
- Chongqing, CN



SHIRLEY TANG, SHANGHAI
Head of Residential Sales, Savills China

Lockdown changed how and where people wanted to live, with more demand for larger apartments of 250 sq m – the typical unit is 100 sq m. There has been a surge in the popularity of Shanghai and its surrounding cities. It is seen as safe with an exceptional business environment as more international companies are coming. Thanks to government stimulus and new infrastructure, Wuhan is also seen as a bright prospect.

The Chinese tend to be confident about the market and don't expect prices to fall. The market cooled when Covid-19 hit, but the government was responsive, introducing policies to reinvigorate the market. Several industries quickly adapted to the situation, creating a new group of buyers as their businesses prospered in the post-Covid world. The focus is no longer Covid-19, but ensuring the economy not only recovers but thrives. **Shanghai 2020 price growth: 5.8%**



HUGO THISTLETHWAYTE, LONDON
Head of Global Residential Operations, Savills

There has been a realisation that a second home doesn't need to be an hour from a main city residence, but could be in Aspen, Jackson Hole or Switzerland. This trend could make places like the Algarve, Mallorca and the south of France 52-weeks-a-year locations. It could also change the perception of winter sport centres – a shift from the higher resorts, where skiing is the lure, to places like Gstaad where skiing is just one of the attractions. In the future, buyers of second homes will want to live in a town with good restaurants and supermarkets, but it can't be so small that you're running into the same people. It also needs to have good transport links. This change in preferences emerged in the late spring of 2020. Once it was proven that working from home was possible, some people began to think about how they would live in the future. A property, even one far away, could be less of a holiday home and more of a second home.

- 3%** Toronto, CA
- Tokyo, JP
- Melbourne, AU
- 2%** Taipei, TW
- Geneva, CH
- Rome, IT
- St Petersburg, RU
- Beijing, CN
- Rio de Janeiro, BR
- 1%** Madrid, ES
- Dublin, IE
- Bern, CH
- 0%** Hong Kong, HK
- 1%** Tianjin, CN
- Mexico City, MX
- Shenzhen, CN
- Zurich, CH
- Mecca, SA
- Abu Dhabi, AE
- Delhi, IN
- Venice, IT
- 2%** Bengaluru, IN
- 4%** Mumbai, IN
- 5%** Manila, PH
- 6%** Bangkok, TH
- Dubai, AE
- 7%** Warsaw, PL

Note Data for Chinese cities: first hand property sales Source Savills Research using Macrobond

Illustration: Andrea Manzati, Synergy Art

Cities at risk: tackling the pressures of extreme weather

The physical impact of climate change on cities is intensifying, and is a growing concern for real estate investors. We look at the risks and how cities are adapting

Words Sophie Chick, Head of Department, Savills World Research

Climate-risk analysis has become part of the decision-making process for investors

Left: Manhattan, New York

The physical risks have become the most evident impact of climate change in recent years. As an increasing number of extreme and unpredictable weather-related events hit the headlines, the scale of the effects on countries and major cities is escalating.

In February 2021, a state of emergency was declared in Texas as it experienced paralyzing snowstorms and some of the lowest temperatures for 30 years. Wildfires in Australia, Brazil and the US have spread fast; California had a record four million acres burnt in 2020. In 2019, Cape Town was just 90 days from running out of water, while the Indonesian capital Jakarta was hit by monsoon floods in February 2021.

There are three categories of climate change-related disasters: climatological, with extreme temperatures causing droughts and forest fires. Hydrological, resulting in floods, landslides, and avalanches. Meteorological events, resulting in storms. While cities experience other natural disasters such as volcanoes and earthquakes, these have not been directly related to climate change.

Data from insurer Munich Re shows that the frequency and intensity of these extreme weather events is increasing. In 1980, the combined effect of hydrological, meteorological and climatological events measured 222 on Munich Re's assessment scale. By 2000, that figure was 474, and had climbed to 760 by 2019. In that year, hydrological events alone hit a level of 360.

This means that many global cities are at risk, particularly coastal ones that are exposed to increases in sea levels, storm activity and associated flooding. It is a risk that is now a central plank to the survival of many cities as they recognise the need to play an active role in formulating climate change mitigation and adaptation policies.

It is also taking greater priority in real estate investors' decision-making. Both the physical risk to their assets at a city- and asset-allocation level, and the mitigation strategy of the city in which they're located are increasingly important.

A robust climate risk analysis has now become part of the due diligence and other investment decision-making processes for many investors. "For physical risks, what we're trying to do is be able to set out in our underwriting process how those physical risks might impact on liquidity, rental growth and insurability and insurance costs," says Abigail Dean, Global Head of Strategic Insights for Nuveen Real Estate.

Extreme weather events associated with climate often result in substantial repair costs and potential for increased insurance premiums. In addition, operating costs may increase if, for example, temperatures continue to rise and properties need to mitigate them.

This can also have an impact on the attractiveness of cities for investors. Analysis from the Lloyd's City Risk Index details those at most risk calculated by losses in gross domestic product (GDP) from 22 threats, including some climate-

Miami coastline,
Florida



related areas. The results show that many cities actually face multiple risks. Tokyo appears in the top 10 for all four categories: drought, heatwaves, floods and storms. While its large GDP plays a significant part in its rankings, the city appears prone to weather-related disasters. There are also the non-weather related threats of large earthquakes and the eruption of Mount Fuji, which are serious concerns.

Many investors have already started to extend their due diligence to the resilience of cities and how they will lead on climate change adaptation. “Where we’ve identified cities that are more vulnerable, we’ve asked [our consultants] to give us an idea of what level of investment we would expect to see from the city authorities or from the federal government on protecting against those risks, says Dean. “Then, we can start to track if that money is actually being spent. If it isn’t, that would obviously then make that location riskier.”

For real estate investors, factoring in physical climate risks will continue to alter the decision-making process for new investments as they need to understand the future costs – and their impact on returns – to ensure individual assets are resilient to extreme weather. This additional layer of understanding a city’s ability to cope brings further complexity and could shift capital based on a city’s ability to adapt.

INNOVATIVE IDEAS TO MITIGATE RISK

■ **Amsterdam** is using city management as a tool and has become the first city to adopt the doughnut economy, which draws upon UN Sustainable Development Goals to set out the minimum needed to live a good life in the city.

■ **Jakarta** has postponed its \$33bn relocation of the sinking capital city to the island of Borneo due to Covid-19. Originally, a state palace, government buildings and transport infrastructure were meant to be ready for 2024.

■ **Seville** has found an innovative way to create a different kind of juice from unwanted oranges that fall in the city’s streets. It is using the methane produced as its famous oranges ferment to generate clean electricity.

■ **Miami**, one of the most vulnerable cities to storms, flooding and seawater rise, is investing \$4bn in its “Rising Above” plan to elevate roads, build new sea walls and install pump and drainage systems.

Images: Getty

Note: *Lloyd’s and Cambridge Centre for Risk Studies (2018). Lloyd’s City Risk Index 2018 [interactive website]. Available from [lloyds.com/cityriskindex](https://www.lloyds.com/cityriskindex). †GDP at risk is an expected annual loss figure, it is a projection based on the likelihood of the loss of economic output from the threat. One way of thinking about GDP at risk is as the money a prudent city needs to put aside each year to cover the cost of risk events

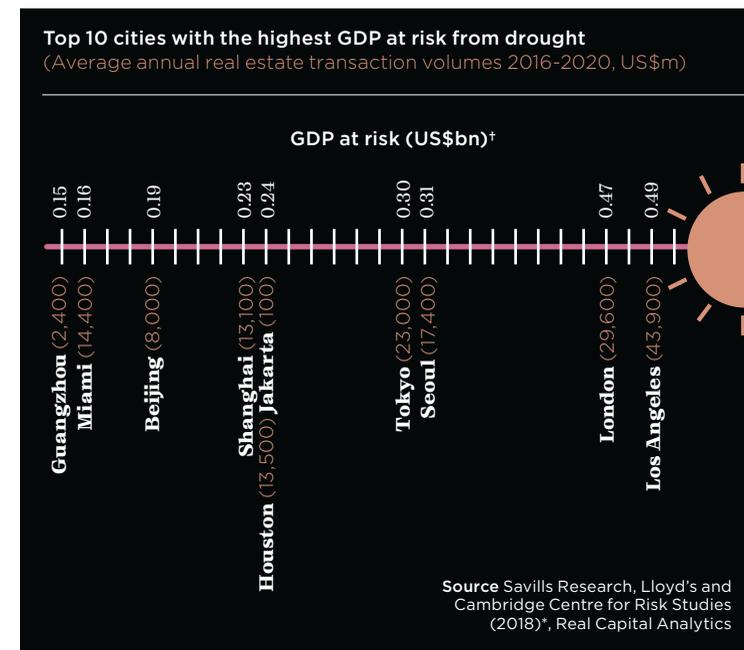
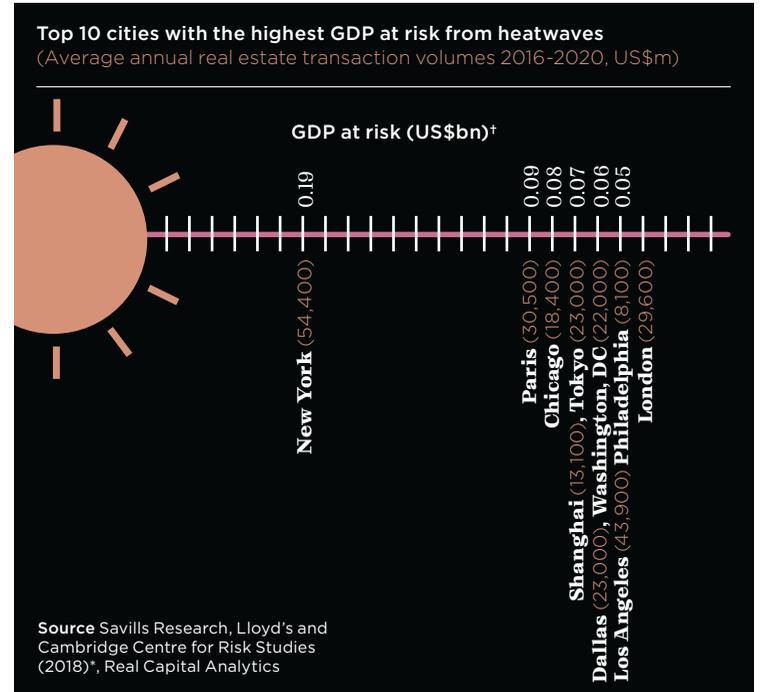
We look at which cities have the most GDP at risk from four different climate-related natural disasters. We also give examples of how two cities are acting to mitigate each risk, one from the top 10 at risk and another with an innovative solution.

Heatwaves

New York has the most GDP value to lose in terms of heatwaves. However, it is Paris, second on the list, that has been a leading city for its action to counter the risk of heatwaves after losing more than 700 Parisians to a deadly summer in 2003.

In its Resilience Strategy of 2017, the French capital set out plans to transform the city’s 761 schools into green islands that function as urban oases of cooler temperatures. By 2040, all of Paris’s schools will be refurbished with green roofs, rainwater capture facilities, cooling fountains and trees. These cool spots also have the benefit of boosting the city’s low levels of green space; currently around 10% versus some 33% in London.

Meanwhile, the city of Ahmedabad in India estimates that it has avoided more than 1,100 heat-related deaths annually since it put in place a Heat Action Plan in 2013. The plan is about adaptive efforts such as using white lime wash to provide a simple and cost-effective solution to extreme heat in the city, as well as community engagement, inter-agency coordination and having an early warning system in place.



Drought

For cities in the US such as Los Angeles, which ranks highest on the at-risk drought rankings, adapting to water shortages has been a decades-long battle. This led to initiatives such as California’s Orange County Water District distributing treated sewage as drinking water from the mid-1970s. The state has now also passed a law to protect its aquifers; an attempt to reverse groundwater deficits by allowing rain to refill aquifers but also by shrinking demand. California will fund better data and look to identify the best places to replenish aquifers by, for example, flooding farm fields.

In Phoenix, water security is high on the agenda as drought could cause part of the state to lose its Colorado River supply in the next five years. The city’s plan is to decouple water use with growth by setting long-term goals, finding opportunities in wastewater management and looking to nature-based solutions. It will fund these ambitions by issuing bonds for municipal water infrastructure. >

Shanghai is reducing its exposure to rising sea levels with 520km of protective sea walls

Floods

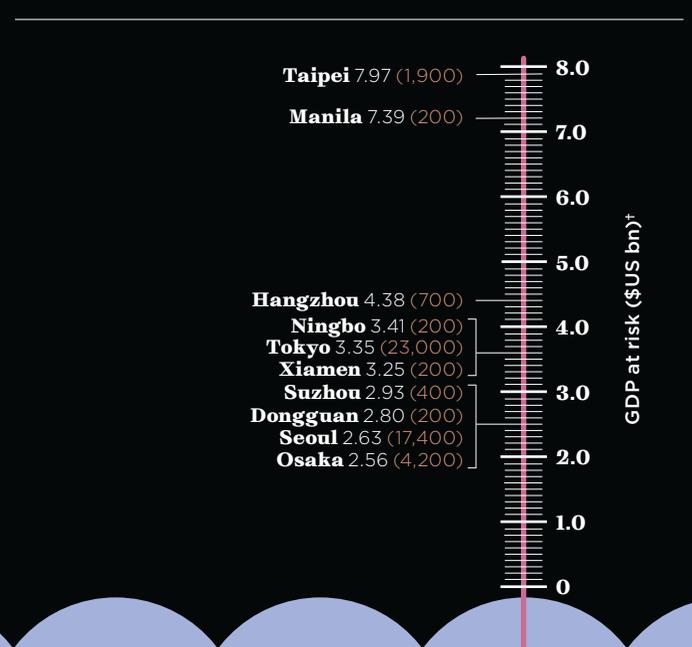
Shanghai, ranking ninth in the flood risk rankings and one of the most flood-prone cities in the world, is part of a wider adaptation policy by China called the sponge city strategy. Initiated in 2014, it requires that 80% of urban land is able to absorb or reuse 70% of storm water. Shanghai is also reducing its exposure to rising seas through an ambitious 520km of protective seawalls that stretch across the Hangzhou Bay and encircle the islands of Chongming, Hengsha and Changxing.

Rotterdam does not feature in the top 10 for good reason: the Dutch have made it a resilient delta city through learning to live with the water. It erected its first dam in the 13th century, and new canals were built in the 1850s to improve water quality and reduce epidemic outbreaks of cholera. Today, it protects the city's population from floods with no impediments to sea traffic. The city is also contending with excessive rainwater and has created water squares which have alternative uses in drier times. At Benthemplein, three such squares can collect rainwater when needed but can also be used as amphitheatres, basketball and volleyball courts and skateboarding rinks.

Top 10 cities with the highest GDP at risk from floods
(Average annual real estate transaction volumes 2016-2020, US\$m)



Top 10 cities with the highest GDP at risk from storms
(Average annual real estate transaction volumes 2016-2020, US\$m)



Storms

With Tokyo at risk from all four types of extreme weather featured, it is no surprise that it has led in innovative solutions for climate adaptation - in this case excess water from typhonic rains and rising rivers. Its flagship defence is a 'floodwater cathedral' 22m below ground as part of a \$2 billion Metropolitan Area Outer Underground Discharge Channel (MAOUDC) with 6.3km of tunnels and chambers.

Across the world in Dominica, the Caribbean island is attempting to make itself hurricane-proof after the devastation caused by Hurricane Maria in 2017. The island's approach was not just to build back hurricane-proof buildings, but also to diversify the tourism and agricultural economy; for example, expanding the goods it grows from its primary export of bananas. Its efforts are governed by the Climate Resilience Execution Agency for Dominica (CREAD), which spans the initiatives from building codes to new geothermal energy plans and transportation infrastructure.



Disasters and environmental change mean that more people are migrating to cities, says Alexandra Bilak, director at the Internal Displacement Monitoring Centre

"That risk to urban locations also extends to more surprising places, such as the US"

While cities need to ensure buildings are resilient to climate risks, these cities will be nothing if the people in them are leaving. Sadly, the displacement of people through climate change is an increasing problem globally. This is both displacements following disasters or the insidious impact of slow onset environmental change as people's livelihoods falter as they struggle to get access to water, food or shelter.

The issue of disaster displacement risk is most associated with Asia-Pacific with its combination of climate hazards and densely populated cities. "What you are seeing is a concentration of economic activity in these cities," says Alexandra Bilak, director of the Internal Displacement Monitoring Centre (IDMC), which provides data, analysis and expertise on the topic to inform policy,

reduce risk and improve the lives of displaced people. "Mostly, these cities are organised on coastal areas, and the disaster displacement risk is also predominantly concentrated in urban areas."

That risk to urban locations also extends to more surprising places, such as the US. "We've seen the US unexpectedly coming up as one of the top three or four countries with the largest number of new disaster displacements every year," says Bilak.

During the wildfires in California, people lost everything and had no insurance cover.

France and the UK are also affected by displacement but to a much lesser extent.

One problem occurs when communities are repeatedly affected by extreme weather events. "It's insidious. It gradually erodes people's coping capacities, their livelihoods, and it pushes them gradually into poverty," says Bilak. Disaster displacement risks disproportionately affect marginalised or poorer groups, both for being less prepared beforehand and less adequately supported by governments in the aftermath.

There is also a vicious cycle for cities as rural areas, too, continue to be affected by climate risks. "People who are losing their livelihoods in rural areas are migrating to the city. So, the city itself is then having to absorb more and more people," says Bilak. "I saw it in Bangladesh, where the coastline is receding and people are moving to Dhaka. Of course, they're not settling in beautifully built villas in the city centre. They are settling in the slums, in informal settlements and becoming, arguably, even more at risk than they were in the coastal areas."

Places that have adapted well are those which have long faced an existential threat from climate risks - the small island states in the Pacific, for example. They have taken on what are often complex and sensitive projects to move communities inland.

For most countries, Bilak says the message is getting through to not build homes in hazard-prone areas and to adapt better building practices and standards, but this is not always a joined-up or urgent conversation. "Maybe they are still thinking about it in a localised ad-hoc way, but I think this is something that is going to become more prominent and urgent in the coming decades." www.internal-displacement.org

HOW GREEN

IS YOUR

WORKPLACE?

For occupiers, green credentials are moving swiftly up the agenda. Work environments that match a sustainable ethos will have greater impact on leasing decisions

Words Sophie Chick, Head of Department, Savills World Research

Corporates around the world are increasingly mindful of their environmental impact. Whether that's their real estate portfolio, business travel or supply chains, companies have many reasons to reduce their carbon emissions.

It's partly reputation – not only to ensure they're a company with 'licence to operate' in line with expected current moral and ethical business practices, but also that they can still attract and retain the best talent, for whom the environmental agenda has become a major priority. They also recognise that, overall, current environmental business practices are not sustainable, and – if they needed a business case – it's also about remaining resilient.

If we consider carbon, a look at the top 100 companies globally by revenue shows 59 have already stated emission reduction goals with an average target date of 2031. The pace of commitments from these companies is speeding up: UK insurance company Aviva and tech giant Google

were among the first, stating they have been carbon neutral since 2006 and 2007 respectively. However, 41% of the companies who have set targets put them in place in the past two years.

Companies tend to look at three types of targets – carbon neutral commitments, 100% renewable energy, and other science-based targets – to define clear paths to reduce emissions.

These commitments also vary by sector. Of the five tech firms in the top 100, all of them have committed to a carbon neutral target. However, that changes rapidly when it comes to the energy companies: just 12 out of 21 have similar targets.

Countering their impact on the planet is hard to fathom. For two thirds of companies reporting carbon footprints, their average emissions are more than 27 million MtCO₂e; this is the equivalent to the carbon sequestered by planting 454 million tree seedlings and growing them for 10 years. >

The role of real estate

While that is a daunting figure, the fact that these companies are reporting and committing to targets is good news: they can take a major role in cutting target emissions. And their real estate portfolios will often be a big part of that.

While emissions will vary by company depending on their sector and whether they are service- or product-led, for many companies, the contribution from their real estate portfolio will be a major pillar of their efforts. This will show through on what type of buildings they use and how efficiently they are operated (see page 43).

Green buildings

On an asset level, companies have been focused for some time on improvements across their portfolios through the use of environmental certification. Research by BREEAM (a leading sustainability assessment company) in 2016 found that the average CO₂ saving for a BREEAM-assessed building is 22%, while a BREEAM Excellent building is expected to reduce carbon emissions by 33%. Reduction in carbon emissions for those buildings rated Outstanding – the upper end of BREEAM’s scale – are expected to be even higher at 66%.

A similar study by University of California, Berkeley, found that LEED-certified buildings (another leading assessor) produced half as many greenhouse gas emissions based on lower water consumption than baseline buildings, 48% less arising from solid waste management, and 5% less due to lower levels of



76%
SAVILLS RESEARCH SHOWS THAT 76% OF OFFICES LET ABOVE £30 PER SQ FT HAD A BREEAM RATING OF AT LEAST 'VERY GOOD'

66%+
REDUCTION IN CARBON EMISSIONS FOR AN 'OUTSTANDING' BREEAM-ASSESSED BUILDING. THE AVERAGE REDUCTION FOR AN 'EXCELLENT' RATING IS 33%

transportation. While both these reports are more than five years old, improvements in building technology and construction should mean these levels have at least been sustained, if not improved upon.

Green premium

While occupiers are embracing the green agenda, it is still difficult to understand if they are willing to pay more for top-class environmental buildings. There are studies that show buildings with green certificates command more rent – in Manchester, UK, Savills research has shown that 76% of offices let above £30 per sq ft had a BREEAM rating of at least Very Good, rising to 100% of buildings let above £35 per sq ft. The Landmark office development is let at the city’s current top rent of £38.50 per sq ft and boasts a BREEAM rating of Excellent.

It is the case that these better, green buildings are often the newest, so it’s hard to separate the premium rent they command from their environmental credentials. However, research from Green Street Advisors also found that green buildings have better occupancy levels. >



The work from home shift and carbon footprints

A debate has emerged about whether working from home or the office is more environmentally friendly. A number of factors need to be considered – the most obvious being transport and energy use.

The International Energy Agency (IEA) suggests that working from home will normally reduce net energy demand for a household that commutes by car, but only if that journey is greater than about 6km.

Any shorter, and working from home could increase CO₂ emissions due to extra residential energy consumption. For those commuters taking public transport, working from home is likely to increase energy demand.

There has naturally been a large uptick in residential energy usage through the pandemic. The IEA says that, initially, overall energy use during lockdown fell by

20% and patterns for residential mirrored Sunday energy consumption levels.

The impact on emissions also depends on whether fossil fuels or renewables are being used. Different seasons and climates also need to be considered. One office building that is cooling or heating many workers may be more efficient than lots of dwellings trying to achieve the same levels.

The IEA is optimistic that flexible working would have a positive effect. It estimates that if all office workers worked from home for one day a week, it would save 1% of global oil consumption for road passenger transport each year. Factoring in the increase in energy use still results in an annual decline of 24 million tonnes, the equivalent to most of Greater London’s annual CO₂ emissions.

1%
SAVING IN GLOBAL OIL USE FOR ROAD PASSENGER TRANSPORT WORKING ONE DAY PER WEEK AT HOME

“ONE OFFICE BUILDING THAT IS COOLING OR HEATING MANY WORKERS MAY BE MORE EFFICIENT THAN LOTS OF DWELLINGS TRYING TO ACHIEVE THE SAME LEVELS”

THE INVESTOR'S PERSPECTIVE

While evidence is scarce that occupiers are willing to pay more for green buildings, it is more likely that unfit office space without green credentials is much less likely to be considered. At present, it is less a green premium and more a brown discount.

However, that brown discount belies a much greater challenge for owners who do not follow a green approach. There are growing transitional risks from climate change associated with buildings as we move towards a cleaner, greener economy.



Investors who do not meet desired criteria or government regulations face owning stranded assets, those properties that will be at risk of early economic obsolescence. Many investors are getting ahead now to futureproof their assets by upgrading them, changing their use or selling.

The industry is also developing ways to support owners, such as with the Carbon Risk Real Estate Monitor (CRREM). This tool helps owners identify the trajectory for annual energy and carbon intensity use for individual assets until 2050 to stay in line with keeping global warming below 2°C (3.6°F).

“ACROSS PORTFOLIOS OF EUROPEAN OFFICE REITS, RESEARCH SHOWS THAT FOR EVERY 5% INCREMENT IN A PORTFOLIO THAT IS CERTIFIED GREEN, THE OCCUPANCY RATE OF A COMPANY IMPROVES BY 85 BASIS POINTS COMPARED TO THOSE WITH FEWER OVERALL GREEN ASSETS”

Across portfolios of European office REITs, research shows that for every 5% increment in a portfolio that is certified green, the occupancy rate of a company improves by 85 basis points compared to those with fewer overall green assets.

There is also evidence that green buildings link to employee satisfaction and wellbeing. A World Green Building Council report studied 11 facilities globally that had one or more green certification. In each case, employee absenteeism was reduced and employees felt more productive and healthier.

Landlord/tenant relationship

In the US, the conversation between landlords and occupiers has not been affected by the impact of Covid-19.

“The pandemic has actually increased the focus on the green credentials of buildings with an emphasis on healthy places as well as energy efficiency,” says Jess Johnson, Head of Cross Border Tenant Advisory – Americas, Savills. “How tenants are going to use the space may well be in flux as we return to the office, but environmental sustainability

SUSTAINABLE PARTNERSHIP

WITH OCCUPIERS AND LANDLORDS WORKING TOGETHER, ANY GREEN LEASE WILL IDEALLY ENHANCE THE ENVIRONMENTAL AND SOCIAL PERFORMANCE OF A BUILDING

continues to be a top priority.”

Another strategy for occupiers is to make sure they benefit from the lower energy and operational costs from buildings, and this will depend on the agreements they have with the landlord. “Occupiers are able to formalise their ambitions for reducing the impact of their real estate through a green lease. This enables both them and the landlord to set out expectations for environmental targets and data collection and sharing,” says Tanya Broadfield, Director of Sustainability, Savills UK.

Green leases are now becoming more common. There is no internationally standardised method of classifying leases as green; they usually refer to a lease or a supplementary document that helps manage and improve the performance of a building with commitments by both the landlord and occupier. “With occupiers and landlords working together, any green lease will ideally enhance the environmental and social performance of a building, help to mitigate any sustainability regulations and market risk and also foster improvements in data collection for reporting,” says Broadfield.

GREEN CERTIFICATION

A WORLD GREEN BUILDING COUNCIL REPORT STUDIED 11 FACILITIES GLOBALLY THAT HAD ONE OR MORE GREEN CERTIFICATION: IN EACH CASE, EMPLOYEE ABSENTEEISM WAS REDUCED AND EMPLOYEES FELT MORE PRODUCTIVE AND HEALTHIER

Images: Getty

Deloitte HQ, London.
BREEAM Outstanding

Creating a workplace for people and the planet

Deloitte's Gavin Harrison and Philip Mitchell explain how the company's commitment to sustainability puts their people and the environment at the heart of the workplace



As one of the big four professional services firms, Deloitte's network of global offices comes with the territory.

Consequently, it is taking seriously its commitment to reduce the impact of its real estate portfolio on the environment. That starts with a simple philosophy: only have as much space as you need.

“This concept of rationalisation and right-sizing is really supportive of sustainability, as you are also going to need less energy to heat the building, less water, fewer materials when we fit it out, so it's a really powerful thing,” says Gavin Harrison, Internal Sustainability Lead at Deloitte UK & North and South Europe.

GREEN CREDENTIALS ARE HIGH ON THE AGENDA

Overseeing a portfolio for 22,000 workers over 1.5 million sq ft across the UK, and parts of Deloitte North and South Europe, the team uses lease events to bring that sizing efficiency as well as upgrade any building's green credentials.

“It's definitely higher up the agenda in terms of landlords understanding that it's a tenant requirement,” says Philip Mitchell, Director, Head of Estate Management at Deloitte UK. He notes that in markets where Deloitte is looking at relocation spaces for its offices that most other occupiers active in those markets are now also placing increased importance on their sustainability requirements.

SELECTING SUSTAINABILITY

Once buildings are selected, the fit-out process follows Deloitte's own environmental standards which, depending on size and location, work to recommended BREEAM Excellent or, for buildings over 5,000 sq m, BREEAM Outstanding. Deloitte's HQ at One New Street Square, London is one of its BREEAM Outstanding buildings.

It will also agree a memorandum of understanding on environmental operations with its landlords, which is

akin to a green lease. This sets out agreements on Deloitte receiving regular data from the landlord, the way energy is sourced and ensuring buildings are zero waste to landfill. Harrison says the agreement basically states: “We'd like to work collectively to make sure that the building's energy use is tracked monthly and you're encouraging energy efficiency.”

EMPLOYEE FOCUS

Deloitte's focus on real estate slots into the wider green agenda of which employees are increasingly mindful.

“When someone joins the firm, they like to know we've got our net zero ambitions,” says Harrison. And, while issues such as reducing business travel are more critical in terms of behaviour change, real estate's efforts are still an important visible contributor. “They experience the building that they're working in, therefore they believe that you have this agenda,” he adds.

The path to carbon net zero

Property companies are turning to offsetting their carbon emissions as part of their plans to become net zero. But what is offsetting and what are the options and outcomes for investors? Emily Hamilton, Head of ESG, Savills Investment Management, and Emily Norton, Head of Rural Research, Savills UK, provide the answers

We need to look beyond land-based solutions and focus more on oceans – our single largest carbon sink

Why is the ESG agenda growing for property investors?

Emily Hamilton (EH) Market demand. Sustainability is no longer a USP, it is required for successful businesses. That has to do with policy and regulatory changes, as well as public perception – the impact of Greta Thunberg, the global climate strikes and people seeing the impacts of climate change. Covid-19 has also shown that ESG-focused funds, particularly logistics with high sustainability credentials, have been the most resilient throughout the pandemic. That provides more impetus.

How does carbon offsetting fit in?

Emily Norton (EN) It's a way for companies to take responsibility for unavoidable carbon emissions from their businesses – by investing in environmental projects to balance out their emissions.

What role does offsetting play for property investors and their net zero agendas?

EH For the property sector, it's difficult to get buildings to be zero carbon emissions immediately. The technology is well-developed but the funding and policy structures aren't there yet. So, companies will need to offset some emissions to get to net zero.

The other issue is that, at present, you cannot be net zero for developments because of the materials. There is no net zero carbon steel yet. So, if we are going to develop homes, schools and hospitals, then offsetting has to be part of the strategy.

What are the offsetting options?

EN Generally, you are paying for land use change or management systems that avoid land use change. For example, paying for the management of forestry rather than cutting down forests is one method to avoid land use change. Another would be to pay for the restoration of habitat that can store carbon, such as planting forests. There are risk profiles in all of those offset mechanisms and, generally, planting trees is the least risky because you can see the trees and measure the carbon.

Are we too dependent on planting trees?

EN Yes, there's a bias towards things that are fixed and measurable, such as carbon stores with trees. Tree planting is good but it is essentially geoengineering. You're focusing on one activity to produce a fixed outcome that can be more easily measured. Practices that restore biodiversity or offer catchment water improvements are missed as they are more complicated.

EH We are also missing out on systemic thinking. By prioritising tree planting, for example, we could be missing opportunities for whole landscape scale restoration, such as improving our rivers and soils. We also need to look beyond land-based solutions and focus more on oceans. They are our single largest carbon sink and provide habitats for more than a million species of wildlife. We are dependent on our oceans because they provide up to 70%

of the earth's oxygen, but much less focus is given to restoration projects for oceans and seas, compared with tree planting.

So, how can the industry improve?

EN With partnership schemes between organisations. Here, you might have an NGO working with local communities to create a conservation-based scheme where the carbon benefits of habitat management are sold to an investor. But these types of schemes have a more complex story and it's harder for the investment community to engage with. It's more bespoke but less scalable.

The more unpredictable nature-based solutions also have co-benefits such as improving employment or biodiversity. But they become less investable as there's more risk and less certainty about measurable offsetting benefits. We need to think about this because the biodiversity crisis is urgent.

Why are investors leaning towards the simpler opportunities?

EN The way that it's accounted for is a major issue; investors need certainty of the benefits they are investing in. If you were allowed to include the co-benefits rather than just carbon storage as part of the offsetting they would be more attractive.

The other thing is to find more ways of investing in carbon storage that don't focus on permanent land use change – regenerative agriculture, for example. You're still producing food but there is an active system of storing carbon in soil. This should allow investors to target a more diverse range of outcomes from land management.

Is there a danger that offsetting replaces the work companies should be doing to decarbonise their businesses at source?

EH Yes, in some cases that is happening because there's no verified standard for net zero carbon. Some companies say their building is net zero carbon if they've just switched all their energy to green supplies. Others claim they're zero carbon if they've not designed to any particular good carbon emissions standards and they're just offsetting it all at the cheapest rate, so \$7 per tonne of carbon.

EN These problems come back to the cost of a tonne of carbon. While the external cost of buying a carbon offset remains unregulated in real estate and is so cheap, it reduces the internal incentive to make the investments needed to get to net zero. It becomes more efficient to offset than it does to invest. That's why some companies are setting aggressive, internal carbon taxes on themselves to balance the economic decision-making internally.

What is the market rate for offsetting?

EN The current market price is around \$28 per tonne in the UK. However, the most progressive property companies are currently setting an internal rate of about \$125. A recent report from Wood Mackenzie estimates by 2030, it will need to be \$160 per tonne globally. The real estate sector needs to adopt this upper figure. >

How do you expect offsetting to evolve?

EN More sophistication, where investors understand the trade-offs and mechanisms of a more complex approach. Innovation in data and technology is simplifying the complexity here. We're seeing more demand for accredited carbon offsets and a more transparent and accountable system of offsetting.

What guidance is there for investors?

EH It's increasing. The UK Green Building Council's best practice guidance has eight carbon offset principles that include aspects such as being measurable, independently verified and representing permanent emission reduction and removal. Additionality is another important factor. A project needs to demonstrate that it could not have taken place without the offsetting finance and achieves more than it would have if it had not been carried out.

Are there also ways for companies to help set offsetting levels and disclose them?

EH There isn't a standardised approach. The Better Buildings Partnership in the UK has a net zero carbon framework, which encourages companies to reduce emissions and set out transparently what their net zero carbon pathway covers. This is probably the best we have, and many companies adopting this have global footprints, so that is becoming more influential.

Some real estate companies are also using Science Based Targets (SBT) which provide a clearly defined path to reduce emissions, but this isn't always the best fit for property as they focus on Scope 1 emissions, which are direct emissions under a company's control, such as fuel combustion and fleet vehicles, and Scope 2, which are indirect emissions from electricity purchased and used by the company. While SBT does include Scope 3 indirect emissions associated with buildings and development, such as waste, the methodology is less robust than the methodology applied to Scope 1 and 2 emissions. SBT are working on updating this.

There is also the Task Force on Climate-related Financial Disclosures (TCFD), which supports on the risks and opportunities of the climate crisis, and includes carbon emissions as an indicator.

Is regulation playing a role?

EH Cities are leading the way. London and New York have set pretty strict targets. If you don't achieve London's targets for carbon emissions for new developments you have to pay £95 per metric tonne. In New York, it's \$125 per metric tonne. The monetary authority of Singapore has strict guidelines as to what they expect asset managers to report and is using the TCFD for that.

Are there broader environmental outcomes for property investors in offsetting?

EH If it's done at a large enough scale it could really start to stimulate regenerative projects. For example, could we link up with a client's other managers because we're doing this as a property investment manager? What are the other asset classes

Journey to net zero Spain

In 2019, Spain reduced emissions by 6.2% while global emissions remained flat. Real estate has been galvanised by national government priorities and local decarbonisation strategies. "This is not only because it will be mandatory in 2030, but it represents a key positioning in the market and a differentiation from competitors," says David Hernández Núñez, Senior Consultant,

Technical Property Management, Savills Aguirre Newman. Longer term, the industry has ambitious plans with LEED, BREEAM and passivhaus targets. "Real estate companies want to push the envelope to have better outcomes," says Barbara Recio Pelayo, Associate Director, Savills Aguirre Newman. "They have already tested that lower emissions are often related to a better ROI."

Journey to net zero China

With a net zero target of 2060, China is at the start of its journey. For now, only a few Chinese real estate companies have announced their own targets. "Once policies are in place, the real estate industry will respond quickly," says Marco Meng, Head of Property and Asset Management, Savills China. "As well as following government guidelines, they are motivated by the need to futureproof assets,

and the chance to enhance occupancy and rent levels." Companies from Hong Kong, Taiwan and international developers in China are more advanced in their initiatives. Hong Kong's Shui On has signed up to the Science Based Targets. Another initiative for companies active in China is mindful MATERIALS, which provides information on the sustainability of building materials.

If you can put offsetting into more restorative and, in the end, regenerative projects, then you're starting to restore the natural environment at a more linked-up level

Offsetting projects

Vilcabamba Amboró Conservation Corridor, Peru

This project aims to improve the livelihood of local communities, reduce unplanned deforestation and conserve biodiversity. Activities include sustainable forest management in Forest Stewardship Council-certified timber concessions. Since 2009, the project has had total emissions reduction of 660,000 tonnes CO₂ equivalent per annum.

Community chlorofluorocarbons destruction, Ghana

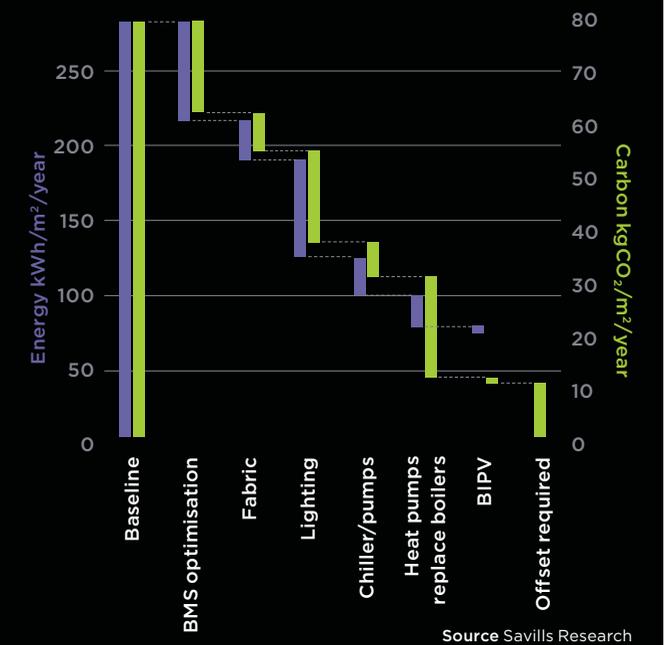
This is a grassroots programme to collect cans and cylinders of chlorofluorocarbons (CFCs), aggregate the refrigerant inside, and dispose of the material without harming the environment. This is done through partnership with a recycling centre in Pokuase, Ghana. Other benefits include providing formal employment and reducing unauthorised and environmentally-harmful burning of electric cables.

Woodland & habitat creation, Cairngorms National Park, Scotland

This landscape scale project is a native woodland and habitat creation scheme across a total of 1,900 hectares in the Cairngorms National Park. Planting is due to start in winter 2022 and, over its lifetime, this project will sequester 400,000 tonnes of carbon, as well as increasing the biodiversity and habitat connectivity of the landscape. The carbon sequestered will be used as an internal offset, with a view to commercialising surplus carbon units.

Carbon abatement chart

This shows the measures an office building would go through to reduce energy use and carbon emissions from a baseline level. However, residual energy and material use will always remain and require offset of some form



doing? If you could find a way to collaborate, if we need to offset then we could be supporting the wider corporate environmental aims of many organisations to go beyond singular tree planting or one-off renewable energy projects. Personally, I'd love to see investment in greening our cities at scale.

EN If we can put offsetting into more restorative and, in the end, regenerative projects, then you're starting to restore the natural environment at a more linked-up level than it just being about carbon. Everyone is so focused on carbon, we will miss out on broader opportunities to create really great places. You might have a good carbon building but a sterile environment because all your efforts are in the building and not enough in the planting around it.

Should offsetting be a short-term solution in the overall drive to reduce emissions?

EN In a way, yes. Ideally, every property should be regenerative. It should be contributing more economic, social and environmental capital than it's consuming within its own limits, rather than saying that its negative environmental consequences need to be offset.

Words Sophie Chick, Head of Department, Savills World Research

Cheaper, more efficient solar panels and the modular nature of energy production makes solar power the perfect fit for real estate, allowing the sector to evolve and embrace solar's huge potential



"Every day we get enough energy from the sun to power our planet for 27 years"

Illustration: The Project Twins, Synergy Art

Solar alone has the potential to reduce global carbon emissions by up to 25% by 2050

The sun is the ultimate source of almost all the energy used on earth, and trapping that energy is cheaper and more efficient than ever before. Solar is the fastest-growing form of renewable energy, and real estate can play a significant part in that growth story.

The International Energy Agency (IEA) forecasts renewables will overtake coal as the largest source of electricity generation by 2025, supplying one third of the world's electricity. It predicts solar will show the strongest growth over the next two decades.

Thomas McMillan, Head of Energy Consulting at Savills, says: "Every day we get enough energy from the sun to power our planet for 27 years. Solar alone has the potential to reduce global carbon emissions by up to 25% by 2050 and it's a technology that works today."

Solar power is cheaper than ever, thanks to the steadily decreasing cost and improved efficiency of solar panels – between 2015 and 2019, the cost of solar modules fell 41.2%

globally. The IEA says solar is the cheapest electricity in history in some markets.

Seasonality of sunshine is an obstacle for solar in temperate climates. However, the sunny climate of the Middle East is driving substantial investment in solar, says Stuart Healey, Commercial Director, Building & Projects Consultancy, Savills Dubai. "The region is leading on various fronts, such as hosting the largest single-site solar park at Mohammed Bin Rashid Al Maktoum Solar Park in Dubai; investing \$50 billion into renewable energy by 2023 in Saudi Arabia; and setting ambitious targets, such as the Egyptian government's plan to obtain 42% of the country's electricity from renewables by 2034."

Solar: the perfect fit

Investors in solar energy production face upfront costs for systems and installation, but minimal ongoing costs, while maintenance is simple and relatively cheap: a broken panel is easy to replace and does not bring the whole system down.

The modular nature of solar makes it "the perfect fit for real estate," says McMillan. "It can be installed on a roof or a canopy over a car park, allowing asset owners to generate their own electricity." Solar panels are installed on buildings as diverse as the Burj Khalifa in Dubai, the White House in Washington, DC, and the 'Sundial building' in Dezhou, China, a conference and exhibition centre with 5,000 sq m of solar cells on its roof.

Solar can work for the façade as well as the roof. South Korean conglomerate Hanwha recently remodelled its office tower HQ in Seoul with a façade that includes upwards-angled solar panels. The panels also shade the windows below, reducing heat gain.

The low, wide profile of warehouse buildings means solar panels have proven popular with logistics real estate companies. Asia-Pacific logistics specialist ESR had solar panels installed on close to two million sq m of warehousing across the region, according to its 2019 annual report, and generated 95,000 GJ over the year, enough to power 2,500 homes.

Commercial real estate owners who install solar can benefit from lower electricity costs. The Solar Energy Industries Association estimates an average US office building could save 20-40% on its annual energy bill from installing solar panels.

The use of renewables can contribute to company ESG goals or to meeting the requirements of green legislation. Asset owners can also potentially sell surplus power back to the grid. For example, the UK's Smart Export Guarantee scheme allows excess renewable power to be sold to energy companies for 2-5.6p per kWh.

The millions of dwellings in the residential sector provide a significant opportunity for solar. For homeowners, the main obstacles are the cost of retrofitting and the appearance of the panels. However, developers are fitting solar panels on many new homes in Europe and roof-integrated panels are less obtrusive.

TOMORROW'S TARGET: PANELS ON EVERY ROOF

"The story of solar in the past decade has been that of price reductions achieved through technological development and economies of scale. As cell efficiency has improved as well, the power capacity of a panel has risen by a third in the past five years. Work is underway on new tech which could boost that by a further 50% in the future.

Regulation is a big driver for us; we make roof-integrated solar panels that are used by housebuilders in the UK and Europe to ensure new homes meet ever more stringent emissions targets.

Over the next decade, the big story will be the partner technologies that are enablers for solar power.

Battery storage is the obvious one; most people who add solar to their own homes now include battery storage. Another is smart energy grids, where price signals are used to align consumption to availability. These work alongside smart devices, such as fridges that can regulate how hard they run, depending on the electricity price.

Declining battery costs mean the payback for installing our panels is now around eight years and falling.

In 2050, good for the solar industry will mean panels on every roof."

Stuart Elmes
Chief Executive, Viridian Solar

By 2050, I'd like the circular economy to be ingrained in people's behaviour

Clean tech: 3 pioneers greening real estate

How the industry is harnessing the power of clean tech to reduce its environmental impact

Words Nicky Wightman, Director of Emerging Trends, Savills

Clean tech refers to the technologies that seek to reduce the environmental impact of human activities, to significantly reduce the consumption of natural resources, or to mitigate the effects of climate change. This encompasses a range of technologies, including renewable energy, waste management or industrial process improvements.

Investor interest in the sector has grown rapidly. In 2020 it accounted for 11% of total global venture capital investment, up from 5% in 2015. Investors are allocating \$3.8 million to each deal, 30% more than the all-sector average.

The built environment is responsible for 39% of all carbon emissions, so real estate has to be part of the solution, whether it is reducing the operational emissions of buildings – which make up 28% of global emissions – or the embodied carbon emissions in a building, which account for the remaining 11% (data from the International Energy Agency).

We talk to the founders of three platforms that are bringing fresh ideas and clean tech to real estate...



Redistribute and reuse

May Al-Karooni, CEO and founder, Globechain

Around five years ago, the bank I worked for was moving to offices just across the road. The facilities management team asked what people wanted for their new workstations, and I wondered why we didn't just move the existing chairs and desks with us. I thought it was crazy – not just the waste, but the cost, too.

So I created Globechain, a B2B reuse marketplace to link companies with other businesses, charities and individuals to make unwanted construction and fit-out materials available to those who need them.

We also track where everything goes for companies' ESG data. During the past three years we have saved 7,300 tonnes from landfill, but that is a drop in the ocean of worldwide waste.

By 2050, I'd like the circular economy to be ingrained in people's behaviour. The real estate industry has become a lot more focused on ESG in recent years and companies are now more aware of what it costs to throw things away. However, we need more scalable solutions to reduce waste.



Smarter deliveries

Tom Selva, CEO and founder, Mayordomo Smart Point

Having deliveries at your fingertips comes at a cost. Around half the carbon generated by the delivery of goods from manufacturer to consumer is generated by the last mile of delivery. Mayordomo uses artificial intelligence and the Internet of Things to reduce the impact of that delivery.

Our Smart Points are intelligent lockers which can be located in the shared spaces of an office or residential building. From here, occupants can manage deliveries and pickups from any courier or business.

The data we collect is used to manage deliveries and collections more efficiently across multiple buildings, which saves journeys and reduces cost and emissions. We estimate that each Smart Point saves 5.4 tonnes of carbon a year. These systems gain the best economies of scale across a city. We have agreed city-wide networks with five major European cities in order to create public-private collaborations towards a zero-emission delivery network.

Good in 2050 means zero-emission delivery of any goods or service at a lower cost and higher convenience to users.

Illustration: Synergy Art

Thinking houses

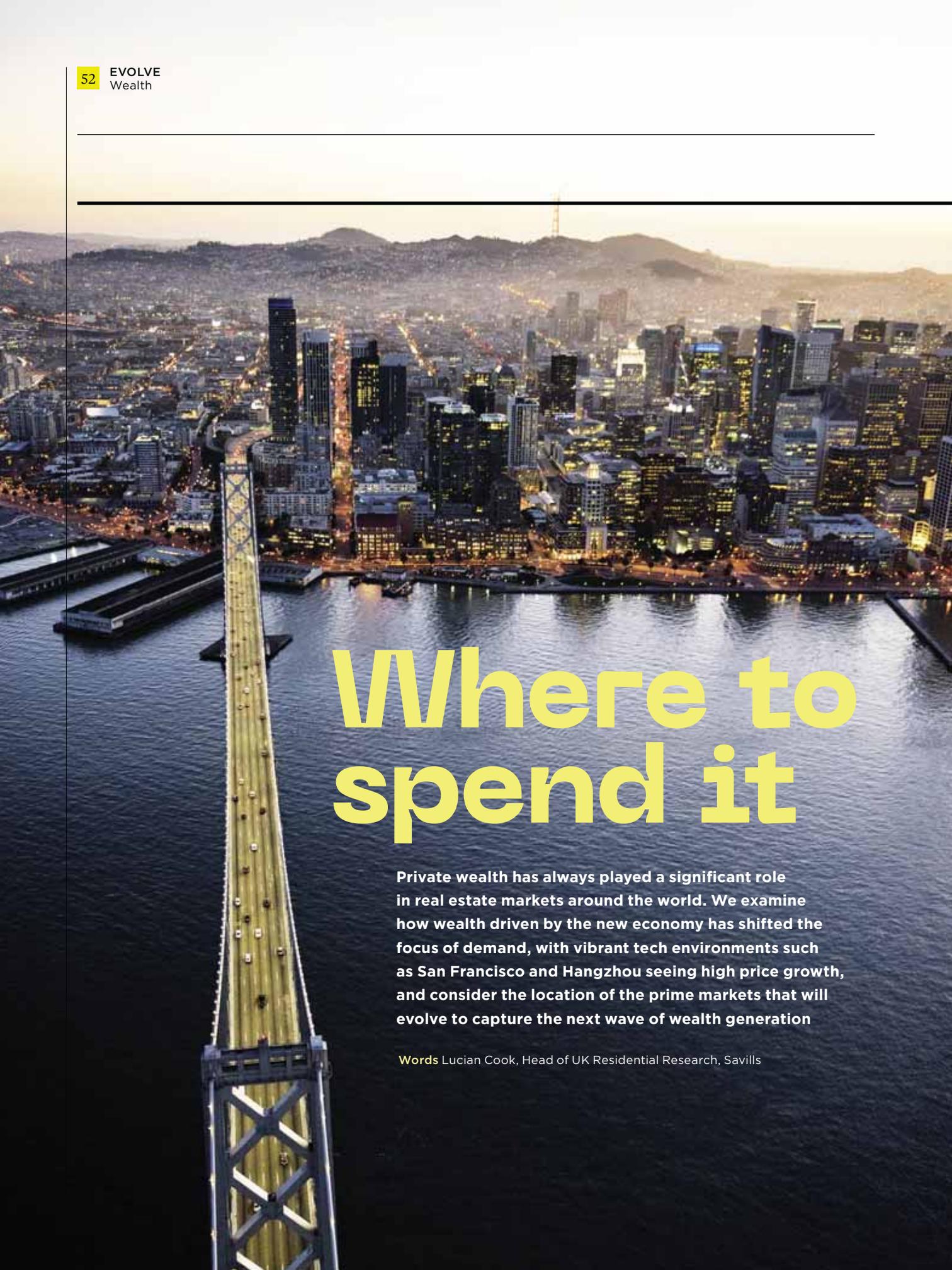
Daniel Burton, CEO and founder, Wondrwall

Buildings are the largest energy consumers in Europe, generating more than a third of greenhouse gases. They must become more efficient if we are to make our economies carbon net zero.

Our approach is to give the home a brain. For example, our light switches house 13 different sensors that collate behavioural information. AI-powered machine learning combines this data with external information, such as time of electricity use, electricity costs and weather forecasts, to intelligently light and heat the home in the most energy- and cost-effective way. The system integrates solar panels, batteries and efficient heating panels which together can reduce energy bills for the average UK home by up to 90%.

This kind of technology can help housebuilders and social housing providers meet ESG targets. These systems are most effective when installed as part of a new build, however we are seeing more retrofitting to existing homes.

By 2050 we'd like to see intelligent homes become the norm, which will substantially reduce domestic energy use.



Where to spend it

Private wealth has always played a significant role in real estate markets around the world. We examine how wealth driven by the new economy has shifted the focus of demand, with vibrant tech environments such as San Francisco and Hangzhou seeing high price growth, and consider the location of the prime markets that will evolve to capture the next wave of wealth generation

Words Lucian Cook, Head of UK Residential Research, Savills

As patterns of domestic wealth generation have evolved, so too have the demands on prime residential markets

P rivate wealth has always played a significant role in real estate markets around the world. Even as those markets evolve and new asset classes come to the fore, it continues to do so. According to data from Real Capital Analytics, private investment in global commercial real estate averaged more than \$615 billion in the four years to the end of 2020, some 36% of all sums invested.

But it is in the world's prime residential markets that the fortunes of global wealth and property are most intertwined and interconnected.

A source and store of wealth

Residential property has been both an important store and source of wealth among the 1% of the world's population with net assets of over \$1 million; the high net worth individuals (HNWIs) who account for 43% of all global wealth, according to the Credit Suisse Global Wealth Report.

This dual role of residential property, in both creating and holding wealth, is well illustrated in the UK. We estimate that, across a country that comprises less than 0.2% of the world's land mass, there are 563,000 £1 million+ homes with a combined asset value of £1.15 trillion. Such a store of private wealth reflects the decades of inflation-busting house price growth, seen over the second half of the 20th century and earlier part of the 21st century.

But as is the case in most corners of the world, the distribution of the UK's high-value homes also reflects where the growth in wealth has been seeded.

Some 54% of these £1 million+ homes are located in London and a further 22% in the South East of England. Indeed, there are as many £1 million homes in the single London borough of Wandsworth – the location of choice to raise a family for those who have made their money in the city's financial and business services sector – as there are across the whole of the North of England, Wales and Scotland combined.

Evolving patterns of wealth generation

Looking more widely across the globe, as patterns and sources of domestic wealth generation have evolved, so too have the demands on different prime residential markets. "We have seen a number of long-established prime housing markets appear to hit maturity, some adjusting to a changing profile of market demand and others growing rapidly as their economies have provided the fuel for rapid wealth appreciation," says Alex Christian, Director, London Private Office, Savills.

This is perhaps best exemplified by the experiences of the US and China. The US remains home to by far the greatest number of HNWIs, some 39% of the world's total according to Credit Suisse. Here, for every 1,000 head of population, 76 have wealth of at least US\$1m. Their numbers grew by 30% over the period from 2014 to 2019.

Yet in the five years to the end of 2020, prime property prices in New York, the financial capital of North America, have eased back by -7%. High levels of new supply of top-end properties have taken time to be absorbed by market demand. But equally, the recent growth in wealth has been driven more by the new than the old economy, shifting the focus of demand on the country's prime housing stock.

This is reflected by the fact that in San Francisco (where the tech boom has created the world's highest concentration of billionaires per head of population according to Wealth-X), prime property prices have risen by 15% over the same period.

If we shift our gaze across continents to China, we see that there are less than a quarter of the number of HNWIs in a country with a total population four times the size of the US. However, their numbers have grown by a staggering 277% over the five years to 2019.

And that has supported strong growth in rapidly maturing prime housing markets. In the past five years, prime property prices in Beijing (some 11,000km from New York) have risen by 39%. But, providing yet another reminder of the power of the new generators of wealth, in Hangzhou, a vibrant tech environment has contributed to even higher price appreciation of 60% during that period.

"The expansion of mortgage finance combined with the pace of growth in the economy have meant the Chinese property market has been a very strong wealth generator in its own right over the past two decades," says James Macdonald, Head of Research, Savills China.

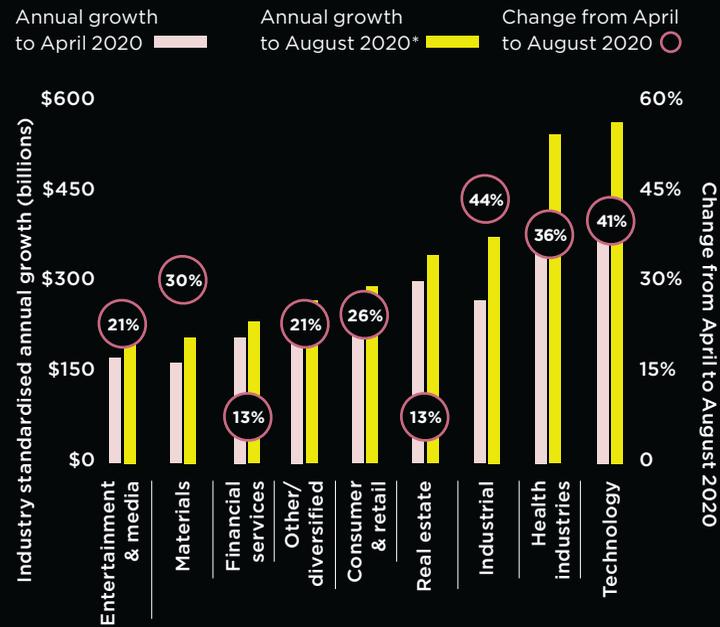
The effect of the Covid-19 pandemic

So, if both changing geographical and sectorial trends in wealth generation are underpinning patterns of price growth across the global prime residential markets, to what extent has the pandemic affected this?

While the International Monetary Fund estimates that output in the global economy contracted by -3.5% in 2020, any hit to the total wealth of the high net worth, ultra-high net worth and billionaire communities appears to have been remarkably short lived. >

The fortunes of mature super-prime markets will be determined by their ability to sustain their appeal to an increasingly diverse community

Billionaire wealth by industry



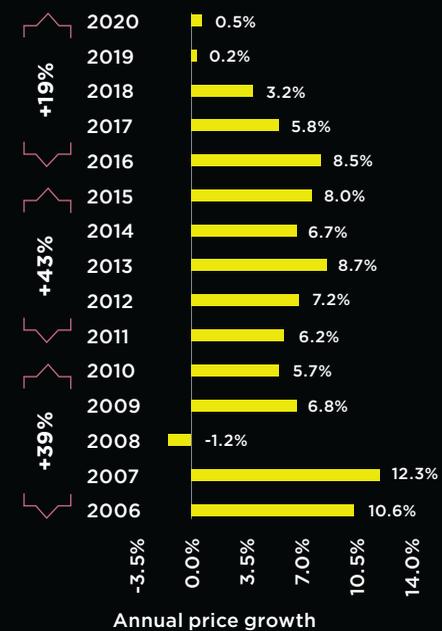
Note *Apr '19-Aug '20 Source Savills Research using UBS/PWC Billionaire Insights 2020

Two million people around the world have wealth over \$10 million

Region	Individuals with wealth over \$10 million		Change over 5 years	
	Number	Per 1m of population	Number	%
North America	1,129,550	4,117	257,586	29.5%
Europe	383,251	650	13,244	3.6%
Asia-Pacific	239,976	201	74,856	45.3%
China	174,952	160	114,249	188.2%
India	36,901	43	24,999	210.0%
Latin America	34,844	79	2,476	7.6%
Africa	6,393	10	-995	-13.5%
World	2,005,867	394	486,415	32.0%

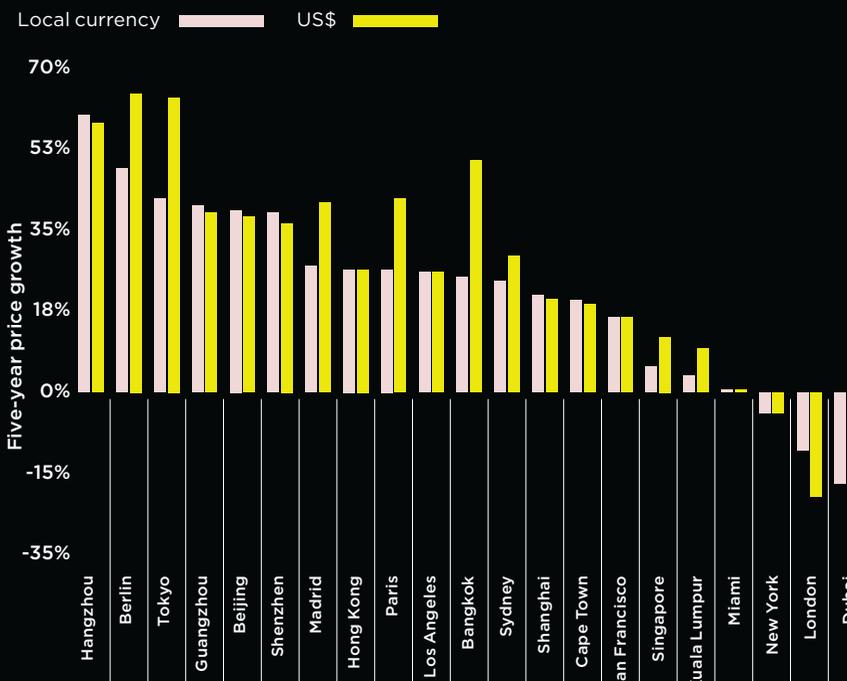
Source Savills Research using Credit Suisse Global Wealth Report 2019

Savills prime residential index – average growth across 30 cities around the world



Source Savills Research

Five-year prime property price growth (to December 2020)



Source Savills Research

Credit Suisse estimates that, while there were different impacts in different countries, over the six months to the end of June 2020 the total number of global HNWI's fell by just 0.11%, while the number of ultra HNWI's slipped by just 122 in number (in a community of more than 175,000). And by the end of 2020 those with wealth of between \$5 million and \$30 million had risen by 1.3%, according to Wealth-X.

Meanwhile, in their Billionaire Insights Report 2020, called *Riding the Storm*, UBS estimated that the total wealth of those at the very top of the wealth pyramid hit a new high of \$10.2 trillion by July 2020. That, they say, reflected a V-shaped rebound in asset prices and strong continued wealth creation among the 'innovators and disrupters', most common in sectors such as technology and life sciences.

Given particularly strong growth in the billionaire populations of China and India, the Hurun Global Rich List 2021 indicates that this billionaire wealth had risen even further by the year end, while in April 2021 Forbes reported that the number of global billionaires increased by 660 in 2020.

Prime values

Savills prime residential world cities index suggests that, on average, prices across the global real estate markets followed a similar pattern, with prices ending the year marginally higher (+0.5%) than at the beginning.

Again, this average hides significant country by country and city by city variation. Whereas prices in Singapore fell by 3.4%, in Tokyo they rose by 2.4%. And while values in London remained broadly flat, they rose by 6.4% in the severely supply-constrained markets of Berlin.

Where the pandemic has had an impact has been on what HNWI's and UHNWI's have wanted from their primary residences and second homes. Justin Marking, Head of Global Residential, Savills describes it succinctly: "The desire for more space, both inside and out, has driven a surge in activity in commuter and lifestyle relocation markets, whether that is a rush to buy in the Hamptons in New York, the Côte d'Azur in France or the Cotswolds in England."

Race to the top

The higher you climb the wealth pyramid, the more residential property acquires the attributes of a true luxury asset. So, the decision to purchase becomes more discretionary and the ownership profile more international.

Accordingly, with international travel largely put on hold, many of the globe's super-prime markets did not benefit from the same surge in activity that was seen in some other parts of the prime market, where needs-based buyers are more prevalent. "The flip side of that has been a growing pool of pent-up demand," says Alex Christian.

In the markets of prime Central London, activity in the £5 million+ market was sustained by a combination of domestic buyers, resident non-doms and those overseas buyers with representation in the UK in 2020 and the first half of 2021.

Monaco has longstanding appeal for the ultra-high net worth community

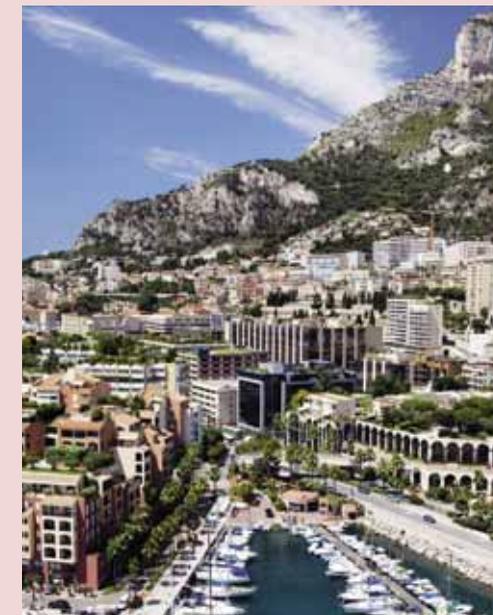
But, in a market that peaked in 2014 and looks good value on the world stage, we are forecasting price growth of more than 20% in the next five years as a flow of international money returns to the market.

There has been a similar picture in Monaco. Prices fell marginally over 2020 but transactions fell by 39% for properties above €10 million.

"Low tax, good amenities, a central position in Europe and an excellent health system have long underpinned Monaco's appeal to the ultra-high net worth community," says Irene Luke, Co-Head of Savills Monaco. "Restricted supply has also made it a secure market in terms of capital preservation. None of this looks likely to change."

Ultimately the fortune of such mature, well-established super-prime markets will be determined by their ability to sustain their appeal to an increasingly diverse and evolving community of those in the highest tiers of the wealth pyramid.

However, in all regions of the globe, the prime markets that deliver the highest future growth will be those that capture the next wave of wealth generation; the tech and science cities that are increasingly becoming the focus of wider property investment.



Images: Getty

Taking stock of retail

As the effects of Covid-19 and online retail bite, how must physical stores evolve to survive?

Words Simon Smith, Regional Head of Research & Consultancy, Savills Asia-Pacific

The World Economic Forum predicts that 1.5 billion more Asians will have joined the middle class by 2030, making the region home to nearly 66% of the world's middle-class citizens

Retail real estate, still evolving to meet the needs of digital consumers, was hit hard by the pandemic. However, investors should not write it off.

Data from Real Capital Analytics shows global sales of retail property slumped 35% in 2020 compared with an all-sector fall of 29%. Furthermore, retail's relative importance to investors has been on the slide. In 2020, it only accounted for 14% of transactions, down from 24% a decade ago.

The challenge to bricks-and-mortar retail from online shopping isn't new, but was heightened by the pandemic. In all markets, but especially those with long lockdowns, retail spending migrated online. Statista data shows e-commerce as a percentage of total global retail sales rose to 18.0% in 2020, from 13.6% in 2019. This makes the outlook for retail property look grim, and indeed there are markets, particularly the US and UK, that are oversupplied with retail: in the US, 12,200 stores closed in 2020, according to CoStar data. Nonetheless, physical stores still account for 84% of retail sales, even during a global pandemic.

The outlook for retail is not uniformly bad: there are bright spots and investors would be wise to take note. People may not have felt like buying a new outfit during lockdown, but they bought groceries. Supermarkets, which remained open throughout, have traded well and Savills data shows supermarket transaction volumes in Europe were 40% above the five-year average last year. European retail warehouses and supermarkets, broadly covering the convenience retail sector, made up 40% of transactions last year.

Reimagining the shopping centre

Elsewhere, Asia-Pacific retail transaction volumes decreased last year. However, growing economies and rising household wealth, youthful demographics and rapid adaptation to omni-channel retail point to strong recovery. Indeed, China has seen crowds heading back to its shopping centres. This is in spite of the country having one of the highest e-commerce penetration rates in the world; almost a third of all Chinese retail sales happen online.

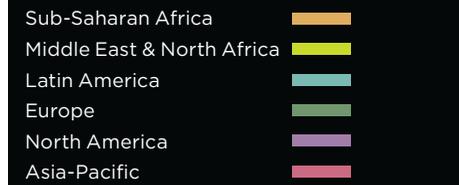
According to Oxford Economics, from 2010 to 2020 the compound annual growth rate for Asia-Pacific retail sales was more than double that of the rest of the world. This is forecast to rise to just under half of all global retail sales by 2030 (see chart). The region is also relatively undersupplied with retail. China, for example, has only half the retail space per head compared with Australia, but it is only growing retail space per capita at around 1% per year.

The World Economic Forum predicts that 1.5 billion more Asians will have joined the middle class by 2030, making the region home to nearly 66% of the world's middle-class citizens. Markets such as India, Vietnam and the Philippines will see huge numbers join the consumer ranks. These countries, along with China, will generate millions of wealthy citizens keen to travel and buy luxury goods.

In markets such as China, retail real estate has evolved alongside e-commerce, enabling Asian retailers and retail landlords to get to grips with omni-channel retail more swiftly than their counterparts in the US and Europe.

The shopping centre also occupies a different position in Asian society: it is not just a place to shop, but a vital community centre for families living in small flats. Location helps too:

Global retail sales by region



Source Savills Research using Oxford Economics

modern retail in Asia tends to be linked to either housing developments or large mixed-use schemes located on transport nodes.

Savills has been examining how retail landlords can adapt their space to change, in its *Re:Imagining Retail* reports. Tom Whittington, Director, Retail and Leisure Research, Savills UK, says: "Retail spaces need to diversify in order to survive and thrive. This does not just mean adding more food and beverage or leisure, it means providing a genuine mix of uses, including workspace. Solutions will be different, depending on location and asset type, but it is hard to imagine any shopping centre staying 100% retail and leisure in the future."

"Owners of retail space need to be there for the long term and have to be flexible about how they lease their space. This will build resilience and optimise both occupation rates and how people use and move around the space. It might be better to think about the shopping centre not as a retail scheme, but as a consumer hub."

Logistics is at the top of many shopping lists. However, investors need to think laterally to find opportunity and value

Thinking inside the

Words Kevin Mofid, Head of UK Logistics and Industrial Research, Savills

The pandemic has been a catalyst to the digital economy worldwide, pushing the e-commerce share of retail up in all markets. Logistics is vital to servicing that demand. Post-Covid-19 estimates suggest that online retail spend in Western Europe is going to increase €442 billion by 2025. Every additional €1 billion of online sales creates demand for an average of 75,000 sq m of warehouse space, which suggests that by 2025, an additional 33.2 million sq m of demand would be created by the online retail sector in the region.

With these fundamentals, investor sentiment is very strong. However, there is an undersupply of modern

logistics assets. Much of the supply is in the hands of global or regional developer-managers such as Prologis, GLP or Crow Holdings. These companies have large land banks and produce a huge amount of stock, but they rarely sell it, unless to one of their own real estate investment trusts.

Lack of available stock has sent logistics yields to an all-time low. Real Capital Analytics data shows average global logistics yields are now 5.8%, only 30 basis points above office yields and lower than retail yields. In developed markets, yields are much lower; in Tokyo, for example, they are below 4%. However, for investors who do not wish to bid for contested assets, or who lack the scale to partner with a logistics

developer, there are emerging niches within the wider sector that offer more opportunity and higher yields.

Growth areas

Cold storage is a specialised part of the supply chain, utilising temperature-controlled warehouses for the storage and transportation of food or medical supplies, such as vaccines. A Research & Markets report estimates that \$7.9 billion was invested globally in developing cold storage warehouses last year, which will grow to \$19 billion in 2027, fuelled by demand for online grocery shopping and reducing food waste. Globally, more stringent ESG targets are looking to the food supply chain to reduce food waste, which in turn fuels demand for cold storage. For investors, cold storage offers yields that are 50-100 basis points above dry logistics facilities and, due to the high cost of fit out, tenants are happy to sign long leases.

Consumer demand for rapid delivery has increased the need for last-mile logistics warehouses, located nearer to the customer. For example, in Paris, SEGRO is developing a 75,000 sq m underground urban logistics centre at the former Gobelins station.

The universe of industrial space keeps on broadening, too. The growth of video-streaming services has led to content producers such as Netflix and Apple taking warehousing space to use as film studios. The need for more studio space is driving demand for warehousing in existing media cities such as London, Los Angeles and New York.

Meanwhile, booming video conferencing and cloud computing means demand for data centres is growing all over the world,

and new data centre funds were launched for China by Gaw Capital Partners, and for Asia and Europe by Keppel Group.

There is also set to be new demand for manufacturing space in mature markets, as companies diversify supply chains and respond to demands for 'reshoring' of manufacturing, especially as automation is increasingly offsetting higher labour costs.

An ever-changing sector

Finally, we shouldn't assume that trends are set in stone. E-commerce will not grow at the same rate as during 2020, while in some markets there is a backlash emerging. In the UK, there are calls to rebalance competition between Amazon and high-street retailers by raising business rates on warehousing space. The #boycottamazon hashtag appears frequently on social media in the US, and in China, anti-monopoly regulators landed Alibaba with a \$2.8 billion fine.

Online retail has faced criticism for the sheer quantity of packaging it generates, and deliveries produce carbon emissions, half of which come from the last mile. Forrester estimates 20% of online purchases are returned, and US reverse logistics operator Optoro estimates 25% of returns are destroyed or end up in landfill.

Concerns about the environment or the size and power of global online retailers will not derail e-commerce, but they are likely to lead to retailers reorganising their logistics to minimise deliveries or to accommodate recycling, which will change the type of space they demand.

Global retail and industrial yields



Source Savills Research using Real Capital Analytics

Experience with convenience: Finding the new balance

A key to the evolution of retail is how logistics space can complement the experiential factor

Words Eri Mitsostergiou, Director, Savills European Research

It seems as if there is an investment seesaw, where the weight of investment has slid from retail to logistics, leaving retail high and dry. Investment intentions surveys from real estate funds associations INREV and ANREV this year found only 29% of institutional investors plan to buy retail in 2021, while more than three-quarters plan to buy logistics.

Retail owners might hope that the seesaw tips the other way at some point, bringing retail back into favour. However, Simon Hope, Head of Global Capital Markets, Savills, says: “Attracted by the pandemic-proof nature of the housing and food sectors, investors are buying retail warehouses because they provide solid income at attractive yields in the current environment, and supermarkets are in demand everywhere. Other retail will need to evolve in order to win back investors.”

A key to that transition is understanding how the two sectors are evolving in conjunction, with logistics supporting the convenience of shopping and retail supplying the experience.

Logistics and retail working in harmony

Retailers don't care about shops or warehouses, they care about retail. They want to use physical space to optimise sales and grow their business. It doesn't matter where the point of sale is – retail landlords need to provide space where tenants can win customers. Experiential retail is the key. Buying online will always be easier, but a click is not an experience. Showfields, a department store for pop-ups in New York, is a great example of experiential shopping. It bills itself as the most interesting store in the world, with art shows, events, customisable products and the chance to play video games.

Experience also needs to be at the heart of shopping centres; people need a reason other than shopping to visit. This might be to dine, to go to the cinema, to work, for education, to play sport or to visit the doctor. All these ‘excuses to go shopping’ need mixed-use retail, either within a shopping centre or a town centre. All of them, and the people who use them, add up to a community.

Logistics space can complement experiential retail. Smaller logistics units in shopping centres or town centres can save shoppers' wrists by picking up and delivering a day's shopping. For example, the Dubai Mall in the UAE will deliver shopping deposited with them by 2pm to your home on the same day. Fulfilment centres in retail locations may also be a solution to the environmental and financial problem of returns. For example, Nordstrom's New York flagship store has an entire floor devoted to customer service, including processing returns.

There is also a blurring of the lines between sales and logistics spaces. We see ‘dark kitchens’, which support online food delivery, and ‘dark retail’ units – stores that have been converted into local fulfilment centres. US homewares retailer Bed Bath & Beyond last year said it would convert 25% of its retail units to ‘dark stores’ in order to serve online customers. If you buy from these stores, are you investing in retail or logistics real estate?

A complex infrastructure

The environmental impact of deliveries, returns and packaging will become a greater focus for pressure groups and governments, therefore also for real estate. Bringing retail

and logistics together, especially at public transport hubs, could lessen the impact.

Asia provides an example of how retail and logistics might develop together, as both sectors have developed alongside e-commerce. For example, China's Chongbang Group builds fulfilment centres where customers can collect, try on and return items from online retailers as part of its mixed-use developments.

Simon Smith, Regional Head of Research and Consultancy, Savills Asia-Pacific, says: “Modern Asian retail space is almost always built as part of a mix of uses, including workspace and residential, and linked to transport hubs. This ensures the footfall which is key to retail success.”

Retail won't be like it used to be: there will be less ‘pure’ retail space, more mixed-use space and more space where the lines between retail and logistics are blurred. This is a reflection of a wider evolution of real estate towards a mix of uses. However, making the most of this will require investors to think beyond either/or and require more work from valuers to assess hybrid spaces, whether they are new developments or repurposed shopping centres.

Industrial and retail yields

Industrial yields have moved in sharply over the past five years, but retail yields have also continued to fall in Asian cities

	NEW YORK		MADRID		PARIS		TOKYO		SINGAPORE		SHANGHAI	
	2015	2020	2015	2020	2015	2020	2015	2020	2015	2020	2015	2020
Industrial	6.3%	4.9%	7.25%	4.75%	5.8%	4.0%	4.0%	3.4%	6.8%*	6.4%*	6.25%	5.25%
Retail	4.7%	5.3%	3.75%	3.75%	3.0%	3.0%	3.5%	2.7%	3.8%	3.0%	4.75%	4.25%

Note *Singapore industrial: 30-year tenured land Source Savills Research

The cities where life sciences are taking hold

A particular focus on science and pharma throughout the pandemic has seen new locations emerge as life science hubs. But which cities are seeing this growth, and why?

Words Steve Lang, Director, Commercial Research, Savills UK

Innovation in healthcare, coupled with an increased focus on wellbeing following Covid-19, has brought life sciences to the forefront of people's lives. This has heightened the investment appeal of major life sciences centres – Boston and San Francisco in the US, Oxford and Cambridge in the UK. However, rising demand is also seeing capital flow to a tier of locations emerging beyond the established markets.

Emerging locations

One key driver of life sciences is venture capital investment. Figures for 2020 reveal interest globally with strong capital flows into China, as well as parts of the US and Europe.

The Chinese city of Wuxi takes the top spot for growth, seeing investment of \$341 million – seven times more venture capital investment than 2019. However, it is the more established Chinese tech location of Shenzhen that saw the highest volume. Off an already strong base, it attracted \$1.4 billion of investment in 2020, four times the level of 2019.

Helped by UK Government funding, the Catapult has encouraged companies to grow and to relocate in Stevenage, forming a specialist cell and gene therapy cluster

Growth in China is partly driven by the opportunity for international companies in a huge market. When it comes to human health, the development of life sciences will also be spurred on by the different human physiology between global regions, therefore creating the need for more 'local' R&D and clinical trials.

Two markets converging

Another trend seen through the venture capital figures is the tech and life sciences crossover cities. Austin in Texas received \$212 million of investment in 2020 across eight deals, an increase of nearly 220%. The city has more than 20 colleges and universities that provide life sciences-related and healthcare education, such as the University of Texas at Austin. Austin is a top ranked tech location in Savills Tech Cities research. This intersection with tech has already seen 240 life sciences companies set up in the region, with a workforce of nearly 15,000.

European centres

While the UK has led in globally recognised life-science locations in Europe, there are also hubs gaining ground on the continent, such as Barcelona, Spain; Zug, Switzerland and Leiden in the Netherlands.

Zug, long associated with life sciences as the country HQ of Roche and Johnson & Johnson, saw a nearly 350% increase in venture capital investment in 2020, with \$341 million from five deals. Leiden, with the largest life sciences and health cluster in the Netherlands, received nearly \$90 million in capital in 2020 from six deals, a funding increase of 162%.

Wuxi: a new Chinese hub

International interest in the Chinese life sciences market has homed in on the mid-sized city of Wuxi (population 6.5 million). In 2020, AstraZeneca, the British/Swedish multinational, joined forces with the Wuxi government and the Wuxi Hi-tech Zone to open the Wuxi International Life Science Innovation Campus. This 300,000 sq m space is dedicated to pharma and medical device research and development, with the aim to be the preferred choice for domestic and overseas life science companies to flourish in China. Wuxi's location west of more-expensive cities Shanghai and Suzhou – both established life sciences cities – is part of the appeal, extending a life sciences corridor.

The success of Stevenage

Stevenage might appear to be an unassuming town north of London, UK, but it is the third-largest cell and gene therapy cluster in the world. In 2020, the town saw a 184% increase in funding to \$193 million spread across six deals. Already home to pharmaceutical giant GSK, its life science credentials grew when it joined the Catapult Network, a group of nine leading technology and innovation centres across 40 locations in the UK. "Helped by government funding, the Catapult has encouraged companies to grow and to relocate in Stevenage, forming a specialist cell and gene therapy cluster," says Tom Mellows, Director, Office & Life Science Leasing & Development, Savills UK. This cluster is centred on the Stevenage Bioscience Catalyst campus, developed by GSK, Wellcome and the UK Government.

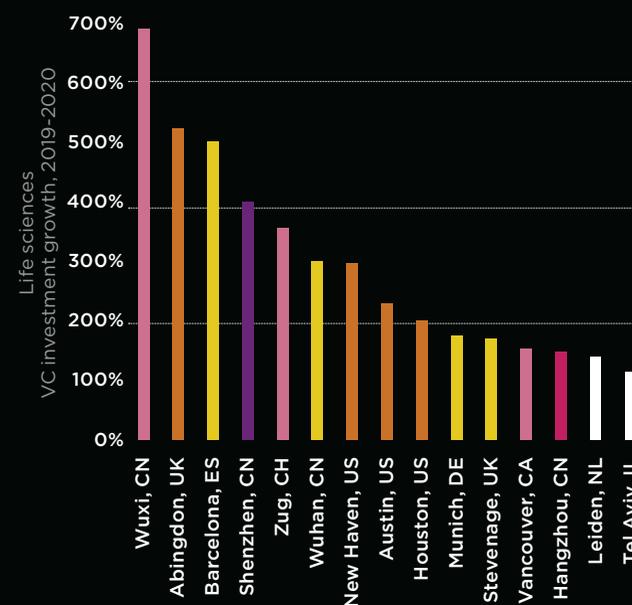
Lifestyle and science in Barcelona

With venture capitalists such as Ysios Capital and Alta Life Sciences backing some successful companies in Barcelona in recent years, it has helped bring maturity to a market with a strong start-up culture. "Before, there was some transfer [of ideas] from the university into companies, and they were bought at the very early stage for very little money," says Montse Barceló Riera, Vice President Europe at global research company Veristat. Now, instead of those ideas being exported, growing companies are recruiting internationally, with Barcelona becoming a burgeoning ecosystem, spurred on by the quality of life offered by the Catalonian city. It has also found its niche, preferring to not compete with big pharma but instead to innovate in areas such as digital health and medical devices. "We are entrepreneurs and we have very good hospitals, so let's keep that science and reinvent it," says Barceló Riera.

Life sciences venture capital investment growth and volumes

2020 VC investment volumes (US\$)

\$1 billion+ \$500 million-\$1 billion \$300 million-\$500 million \$200 million-\$300 million \$100 million-\$200 million Less than \$100 million



Source Savills Research using PitchBook

HOUSING THE DIGITAL HEALTHCARE



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PLAY IN THIS RAPIDLY CHANGING LANDSCAPE

Words Paul Tostevin, Director, Savills World Research

In 2020, telehealth platforms saw a massive influx of venture capital investment, growing 109% to \$3.7 billion

While the pandemic has put pressure on the delivery of acute healthcare, it has also necessitated rapid innovation in how society accesses the help it needs. Routine healthcare appointments quickly moved to telehealth solutions and other digital health platforms. This is likely to have long-lasting implications for how healthcare and senior care is delivered, and the real estate that houses it.

The rise of telehealth

Telehealth, the delivery of healthcare where patients and providers are separated by distance, has dramatically increased during the pandemic. By using digital services, providers have diagnosed and treated diseases and injuries, conducted research and supported the continuing education of health professionals.

In the US, a survey for the Centers for Disease Control and Prevention reported that telehealth visits increased by 50% in the first quarter of 2020 compared with 2019, and in the last week in March 2020 – as lockdowns kicked in – the increase was 154%.

This digital revolution was already underway: the OECD says that about three quarters of its member states have legislation, strategy or policy on the use of telehealth. However, the pandemic did spark investment into the sector. In 2020, telehealth platforms saw a massive influx of venture capital investment, growing 109% to \$3.7 billion as investors recognised the turning point prompted by the pandemic.

Digital delivery will have implications for the amount and type of space that healthcare providers might be looking for in the future. Increasing familiarity with these platforms could see more routine care and initial diagnostics shift online. This could transform the balance of space within GP surgeries towards specialist facilities, such as new space for physical diagnostics and treatment.

Colin Rees Smith, Director, Savills Operational Capital Markets, says that the switch to telehealth is likely only to reduce face-to-face appointments by around 15%, but this could still have an impact. “There could be areas of hotdesking for the higher levels of telehealth and email communications, which could affect the size and number of examination rooms needed,” he says. However, he does not see overall space required declining. Instead, surgeries will fill those gaps by bringing in more health-related community services such as those for mental health.

Targeted diagnostics centres could also be in accessible locations such as repurposed retail units on the high street. In the UK, the NHS is looking to roll out a new diagnostic centre concept

to community hubs to relieve pressure on hospitals, including in shopping centres and out-of-town retail units. In the US, pharmacy CVS has expanded its HealthHub format to treat patients with chronic conditions, while a walk-in clinic was added to the Mall of America in an evolution of ‘medtail’ – the blend between retail and medical services. Incorporating medical uses where retail is struggling has many advantages: it benefits the community to deliver more accessible resources locally, provides regular footfall for the area, and offers landlords reliable tenants.

Innovations in remote diagnostics and monitoring

Another innovation for healthcare is the ability to diagnose and monitor patients through remote devices. It is a movement that fosters independent living as monitors and sensors, and even wearables such as fitness trackers, are adopted and supported digitally. It also helps shift the healthcare emphasis to a more proactive and preventative model.

Already in use is the HeartGuide from Omron Healthcare, the first wearable blood pressure monitor. Bio Patch is a non-invasive wearable that can help medical professionals monitor and measure a patient’s heart rate, ECG, heart rate variability, respiration rate and activity.

Whereas the impact on real estate is likely to be less direct, it is, nonetheless, an important consideration. With many countries having ageing populations and fewer younger people to care for them, technology could help mitigate the dependency ratios. Digital devices enable people to age at home for longer, freeing up specialist accommodation. “It’s a lifestyle choice: people have to want to move rather than having an event that prompts the move,” says Samantha Rowland, Head of Senior Living, Savills Operational Capital Markets. “If you can bridge that gap, you’re on a winning streak.”

That said, there are implications for the housing stock. If older people can live independently for longer, there needs to be more emphasis on downsizing. The operationally light, ‘housing with care’ retirement villages model could play a role and address the social interaction that independent living can’t satisfy, says Rowland. Remote monitoring and devices could mean shorter periods in care homes, and only when residents’ needs escalate. This affects the overall nature of care space. Turnover of residents could rise, putting pressure on income stability and operational efficiencies, thereby increasing costs. If the balance tips towards residents in poorer health, there would also be an impact on the types of facilities required with a greater need for more operationally intensive models.



HOW CITIES MUST EVOLVE TO STRENGTHEN URBAN RESILIENCE

As climate change tops the list of threats to urban resilience, Lauren Sorkin, Executive Director, Resilient Cities Network, says it is time for cities to once again rise to the challenge



The urban environment faces a series of global challenges. But whether that is climate change, creating an equitable society, or protecting vulnerable communities, it is becoming clear that our cities can evolve to offer the most effective leadership in response to these issues.

We work with cities around the world that are committed to building and investing in urban resilience. Each one has set out a strategy identifying the systemic challenges it will face in the coming decades and the assets that will support its evolution. Infrastructure and the built environment are important subsets of those assets.

Cities manage waste systems, water systems, school systems, local roads and mobility, giving them the power to influence change. Perhaps more than anything, this underscores the fact that cities are systems, not silos. So, it is crucial that a city's strategy and investment decisions enhance urban resilience in order to strengthen the interconnection between all systems.

To achieve urban resilience, governance is key. While there may be many players at the helm of city leadership – mayors, governors, municipal commissioners – this is where resilience building must be effectuated. Local leaders understand the needs of their community, so are best suited to guide resilience-building efforts.

Resilience must also be about people: our cities are built by and for people. We have to understand where our vulnerable communities are, and the triggers that might weaken the social fabric.

Where there is deliberate work to develop integrated communities, there is more resilience. This creates a more secure place for investment. The Singaporean Government, for example, has for many years built affordable housing to ensure all ethnic

"REAL ESTATE PLAYERS HAVE A HUGE ROLE IN SUPPORTING CITIES TO BECOME MORE RESILIENT. THE MOST AWARE INDUSTRY ACTORS TAKE A DISTRICT LEVEL APPROACH AS THEY THINK ABOUT FUTURE DEVELOPMENT"

groups are integrated proportionately in all communities.

Supporting communities extends to strengthening ecosystems such as small and medium enterprises. For example, in Oakland, California, part of the pandemic response from the resilience team was to target philanthropic payments to help bolster minority-owned small businesses.

A resilient approach by cities pays dividends when it comes to attracting investment. Take the city of Norfolk, Virginia, in the US, which has a high degree of flooding risk and is reliant on the economy from its naval base. After putting in place a resilience strategy to address sustainability, climate change and sea-level risk in its long-term financial and capital planning, Norfolk's S&P credit rating was upgraded to AAA.

The pandemic has shown that digital infrastructure is critical, and cities have responded. As part of its post-pandemic strategy, Milan has said it is possible for the government to manage a larger part of the digital infrastructure to facilitate communications and data transmission.

Real estate players have a huge role in supporting cities to become more resilient. The most aware industry actors take a district level approach as they think about future development.

Our cities have changed as a result of the pandemic and a local approach is now more important. The shift to home working, for example, gives real estate the opportunity to develop options for residential and commercial spaces that are flexible, inclusive and more integrated into the community. There are critical sustainability and resilience elements advanced in this type of strategy.

Our aim is a holistic approach. By understanding the complexity of cities, we can reduce and help prevent the impact of shocks and stresses on a city's people, economy and physical environment, and improve quality of life.

This is something we all need to be engaged in. Resilience-building strategies send a clear signal to all potential investors and stakeholders that says: "We are addressing our challenges head on."

The Resilient Cities Network brings together funding, knowledge and partnerships to help cities around the world build a safe, equitable and sustainable future

Savills plc is a global real estate services provider listed on the London Stock Exchange. We have an international network of more than 600 offices and associates throughout the Americas, the UK, continental Europe, Asia-Pacific, Africa, India and the Middle East, offering a broad range of specialist advisory, management and transactional services to clients all over the world.

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Repro F1 Colour.
Cover illustration Yoni Alter.
Impacts is produced for Savills by Sunday 207 Union Street, London SE1 0LN. wearesunday.com



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