

GLOBAL CITIES

THE 2017 REPORT

The Future Of Real Estate
In The World's Leading Cities



GLOBAL TALENT HUBS

+

The Global Cities are achieving rapid growth by attracting the talented, high value workers that all companies, across industries, want to recruit

We live in a remarkable era. Around the world over 490 million people reside in countries with negative interest rates. Over 60% of the world's citizens now own a smart phone. An estimated four billion people live in cities, which is up by 23% on ten years ago.

The above figures highlight three key trends that are shaping our times.

Firstly, the era of low to negative interest rates has reduced investors' expectations on what constitutes an acceptable return. The financial rollercoaster ride that led to this situation has made safe haven assets highly sought after.

Secondly, a volatile economy has not stopped an avalanche of technological innovation. Smartphones, tablets, WiFi and 4G have revolutionised the spread of information, increased our ability to work on the move, and led to a flowering of entrepreneurship.

Thirdly, our fast growing cities are centre stage in the innovation economy, and in most of the Global Cities, supply is not keeping pace with demand for both commercial and residential real estate. Consequently, tech and creative firms are increasingly relying upon pre-let deals to accommodate growth, while their young workers struggle to find affordable homes.

The previous two editions of *Global Cities* charted the rising importance of technology firms and creative workers to established business hubs like New York, San Francisco, London and Paris. This edition shows

that the tech and creative economy has spread to emerging market cities like Shanghai and Bangkok, and tier-two western cities like Austin and Berlin.

However, the common message coming from the 34 Global Cities surveyed in this report is that the urban economy is increasingly people-centric. Whether a city is driven by finance, aerospace, commodities, defence, or manufacturing, the most important asset is a large pool of educated and creative workers. Consequently, real estate is increasingly a business that seeks to build an environment that attracts and retains such people.

This year's *Global Cities* report looks at how real estate is achieving this across the world.

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*One World Trade Center,
Manhattan, U.S.*

WRITTEN BY

James Roberts,
Chief Economist and
Editor of Global Cities,
Knight Frank

+

We are moving into an era where creative people are a highly prized commodity. Cities will thrive or sink on their ability to attract this key demographic

A characteristic of the global economy in the last decade has been the phenomenon of stagnation, and indeed decline, occurring alongside innovation and success. If you were invested in the right places and technologies, the last decade has been a great time to make money; yet at the same time some people have lost fortunes.

The locations that have performed best in this unpredictable environment have generally hosted the creative and technology industries that lead the digital revolution, and disrupt established markets. In many ways, the Apple iPhone symbolises our era.

THE IPHONE GENERATION

The iPhone was launched in June 2007, just as the U.S. sub-prime mortgage crisis was escalating into the Global Financial Crisis (or GFC). This should have been a terrible time to launch a new product, however the iPhone defied years of rollercoaster economic news to post rising sales through the GFC, the Euro Crisis, and the commodities rout.

In the process, the iPhone overshadowed telecom's old guard, drew other new entrants into smartphones like Samsung, and morphed a complimentary market in tablet computers. Innovation begat further innovation, as the ubiquity of smartphones and tablets sparked a revolution in how people access the internet, email, media, and social networks. Mould breaking companies, from Uber to AirBNB, have used these devices to become overnight threats to the established order in their industries.

CONTINUED FROM

PG 6-7

Reacting to these fast paced changes, businesses have rushed to recruit creative, highly educated staff, and expanded their offices in the cities that attract the iPhone generation. This 'generation' is not characterised by age, but an adaptive, free thinking mindset. Firms want to lock in those individuals, with offices that match workers' lifestyle and commuting needs.

CREATIVE DESTRUCTION

The iPhone's success demonstrates the phenomenon that the economist, Joseph Schumpeter, called 'creative destruction'. This is where changes in technology and the companies born of this fresh innovation have a Darwinian effect on a previous generation. The new kids on the economic block prosper at the expense of the old guard unless established firms quickly change with the times.

In Schumpeter's era, the rise of aeroplanes, automobiles, and petroleum created economic booms in the cities that led the tech revolution of the 1920s and 1930s. Yet elsewhere recession descended on locations with the industries that lost market share to those new technologies, like ship building, train manufacturing, and coal mining.

Similarly today we have a world where abundant economic opportunities in one region live alongside stagnation elsewhere. It is not easy to reconcile the fact that countries who were booming just a few years ago on rising commodity prices are now adapting to slower growth. Just as surprising is the sight of western cities that were dismissed as busted flushes in 2009 due to their high exposure to financial services, now thriving as innovation centres.

This is creative destruction at work in the modern context. The important lesson for today's property investor, or occupier of business space, is to ensure you are on-the-ground where the 'creation' is occurring, and have limited exposure to the 'destruction'. This is not easy, as the pace of technology change is accelerating the speed at which the old finds itself overtaken by the new.

However, real estate in the Global Cities arguably offers a hedged bet against this uncertainty due to the nature of the modern urban economy; where those facing destruction, quickly reposition towards the next wave of creation.

New York, U.S.

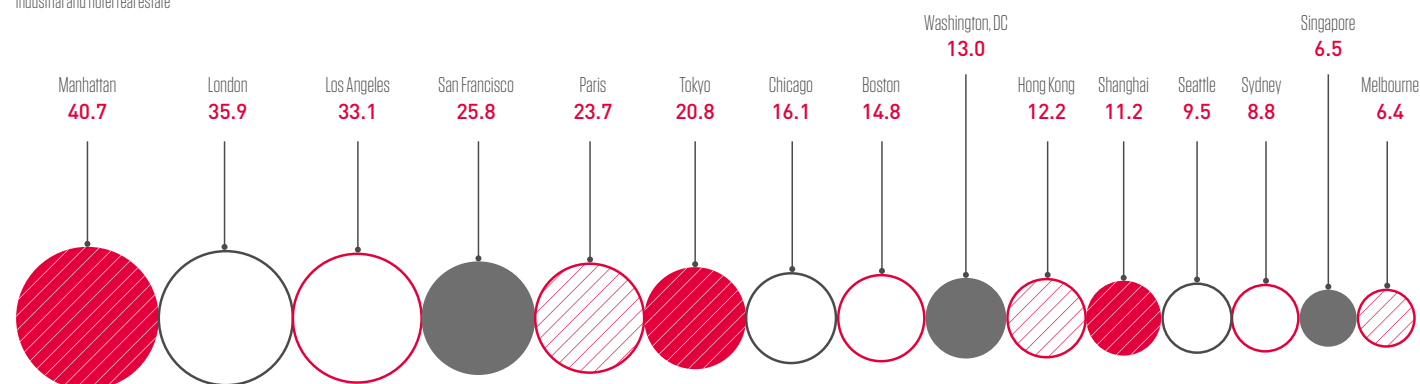


"THE BIG WESTERN CENTRES STILL LEAD IN SERVICES, BUT THE CHALLENGE FROM EMERGING MARKETS DID NOT END WITH THE COMMODITIES ROUT"

Source: RCA, Knight Frank, Newmark, Grubb Knight Frank

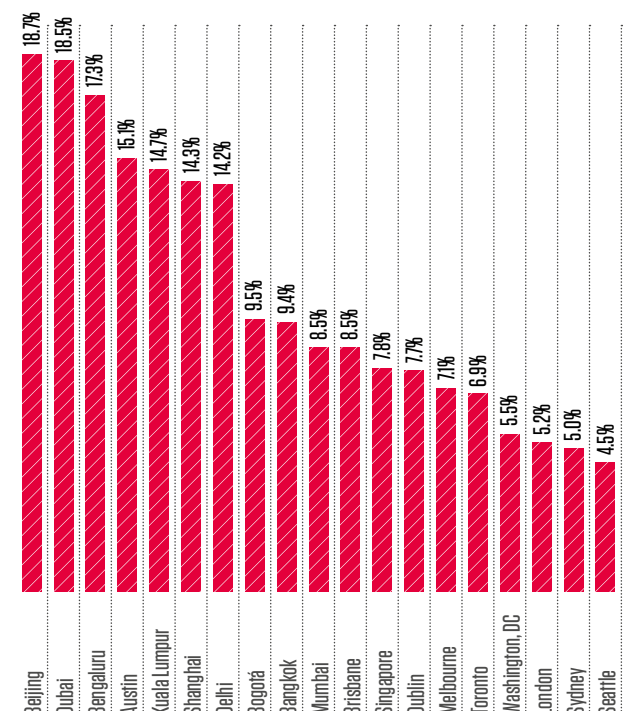
COMMERCIAL REAL ESTATE INVESTMENT VOLUME (YEAR TO JUNE 2016) U.S.\$ BN

Note: Includes office, retail, industrial and hotel real estate



FORECAST POPULATION GROWTH IN GLOBAL CITIES 2015 TO 2020

Source: The United Nations



FLEXIBLE CITIES

The industries that drive the modern Global City are not dependent upon machinery or commodities but people; which delivers economic flexibility. A locomotive plant cannot easily retool to make electric cars, raising a shortcoming of the single industry factory town; while an oil field in Venezuela has limited value for any other commercial activity. However, a modern office building in a Global City like Paris can quickly move from accommodating bankers in rows of desks to techies in flexible work space. So there is adaptability in the people in a service economy city which is matched by the city's real estate.

This means large modern cities can quickly adapt to the forces of creative destruction. In 2007, investment banks were the stars of the New York and London economies. They typically consisted of a small cadre of senior traders and financiers, supported by a large infantry of recent graduates, HR, marketing, IT, research, accounts, and other support workers. The technology and creative firms leading the economy in London and New York in 2016 similarly build around a core of senior creative staff, backed by swathes of graduates and support staff.

So in the people-driven Global Cities a new industry can redeploy the 'infantry' from a fading industry via recruitment. Similarly the professional and business service companies that served the banks, now serve a new clientele of digital firms. In contrast, manufacturing or commodity driven economies face greater barriers when reinventing themselves.

So the knowledge-fountain cities are well tuned for creative destruction, as people can rapidly redeploy as markets are shifted by fresh innovation. The most flexible cities command the highest real estate rents and lowest yields, and that will continue, as they cope best with rapid change.

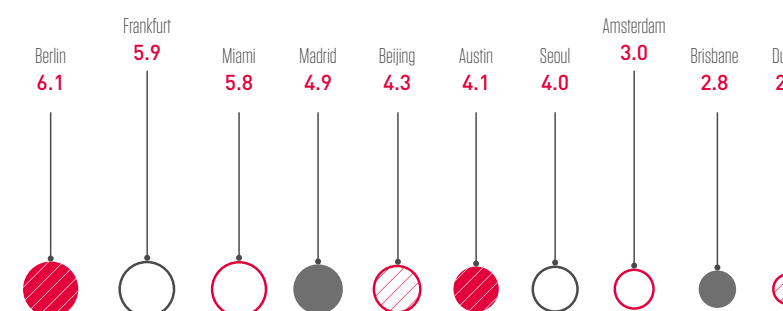
THE CHALLENGES AHEAD

Today, landlords across the world struggle with how to judge the covenants of firms who have not been in existence long enough to have three years of accounts, but are clearly the future. Consequently both landlord and tenant need to approach real estate deals with flexibility. Landlords will need to give ground on lease term and financial track record, and occupiers must compensate the landlord for the increased risk via a higher rent.

Another big challenge for the western Global Cities will be competition from emerging market cities that succeed in repositioning themselves away from manufacturing, and towards creative services. The process has started, with Shanghai now seeing a rapid expansion of its tech and creative industries. The big western centres still lead in services, but the challenge from emerging market cities did not end with the commodities rout. They are just experiencing creative destruction, and will emerge stronger to present a new challenge to the West.



The Bund, Shanghai, China



THE AGE OF EXTREMES

+

WRITTEN BY

James Roberts,
Chief Economist,
Knight Frank

The best way to defend globalisation is to integrate more people into the Global Cities network

Across the world, the political consensus that supported the spread of globalisation finds itself under attack from populist figures from both the right and the left, who have won support by challenging the political mainstream. This raises the question, could the trends that have shaped the global economy – free trade, surging mega-cities, and the supremacy of knowledge workers – go into reverse?

However, we see the global economy adapting to match these protests. The process of change will bring more of the disaffected into the mainstream, by sharing the benefits of the globalisation, and ultimately strengthen the trends driving the Global Cities over the long-term.

POLITICAL DIVIDES

As austerity has become widespread, globalisation has become a focus of criticism in an increasingly divided political debate. The nature of those divisions have been well illustrated in the 2016 U.S. Presidential race and the U.K.'s EU referendum.

In the U.S. election, Republican nominee, Donald Trump, successfully mobilised voters concerned over immigration, and frustrated by growing income inequality. Another source of tension is the decline of U.S. heavy industries, and the rise of new tech and finance jobs that typically require a college degree. These factors also underpinned the 'leave' vote in the U.K.'s EU referendum. The Brexit vote in the U.K. is the latest, and perhaps the most spectacular, example of how the disaffected can use the ballot box to challenge globalisation.

Conversely, the runner-up for the Democrat nomination, Bernie Sanders, successfully appealed to younger voters who felt shutout from the economic mainstream. Large college debts, temporary work contracts, and high house prices have left some millennials railing against the establishment. Thus a younger demographic of voters rallied to a candidate opposing globalisation.



A campaigner on
Oxford Street,
London, U.K. before
the Brexit vote

“FOR TOO LONG THE ISSUE OF BRINGING MORE YOUNG PEOPLE INTO THE ECONOMIC MAINSTREAM VIA HOME OWNERSHIP HAS BEEN IGNORED, AND NOW WE ARE EVEN SEEING THE FALLOUT IN THE POLLS”

Regenerating former heavy-industry sites is a challenge facing advanced economies

Elections in 2017 in France, Germany and The Netherlands could uncover further evidence that the populists are gaining political ground.

SPREADING THE BENEFITS

However, globalisation has faced similar challenges before: from the volatile politics of the 1920s and 1930s, to the trade union militants of the 1970s. Globalisation saw off these threats and resumed its onwards march, and did so by adapting to win over people by spreading the benefits.

This will be achieved by courting the alienated, thus building a new political consensus with a wider support base. Integrating the disaffected into the economic network of the Global Cities will be central to this process.

If greater curbs on immigration are actually introduced, they will actually increase the focus of companies on attracting and retaining high skilled workers, particularly millennials. If it becomes more difficult to bring people in from abroad, the premium commanded by home-grown talent increases.

Improving the lot of former heavy-industry centres will be more challenging, although very low government bond yields will improve the chances of state assistance. Some former-factory towns could be linked by high speed rail to Global Cities, and be redeveloped as large dormitory suburbs. Others will benefit from 'near shoring' back office jobs. However, it is building links with the Global Cities (and thus globalisation) that will deliver regeneration.

Critical to winning back disaffected millennials will be improving their job security and quality of life. On jobs, ironically the pendulum of the market economy is moving in their favour, as the question of how to attract and retain this demographic is rising up the corporate agenda. Moreover, as we enter the age of self-driving vehicles, drones, and artificial intelligence, the younger generation will become central to the economy, thanks to the ease with which they interact with technology. Time is on the millennials' side.

HOMES FOR MILLENNIALS

For quality of life, housing is a major issue. Many millennials feel excluded from the globalised economy because a basic step towards joining the propertied classes, namely home ownership, continues to move further out of reach for them in many of the Global Cities.

This requires a public policy response to accelerate the planning process, incentivise development of affordable inner city homes, and speed up the recycling of former industrial sites as mixed-use districts. The demand is there for new city homes, as is the capital to fund the process, it is a matter of removing the barriers.

For too long the issue of bringing more young people into the economic mainstream via home ownership has been ignored, and now we are even seeing the fallout in the polls. It is time to build more homes.

+ Cities in Asia-Pacific have seen the fastest rental growth for offices in skyscrapers

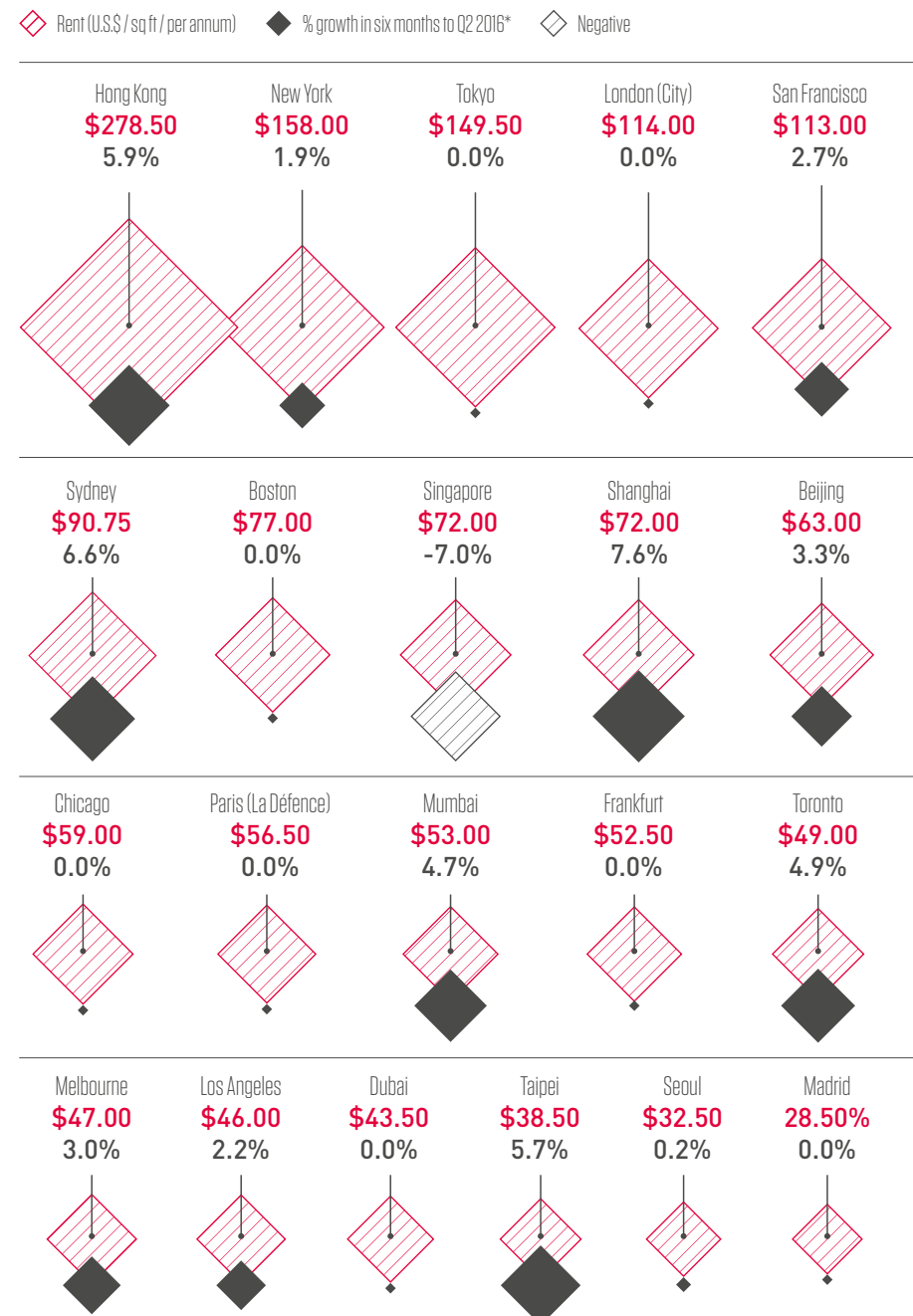
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THE SKYSCRAPER INDEX ASIA RISING

The upper floors in the Hong Kong's towers continue to command the highest skyscraper office rents in the world as at Q2 2016, followed by high rise buildings New York City. As both cities have their core CBD on an island, the supply of land is highly constrained, so office rents are high. The long-term commercial success of both Hong Kong and New York also help explain the high rents commanded by their tower buildings. However, rents for Shanghai skyscraper offices grew the fastest among the cities surveyed, at

7.6% in the six months to June 2016, with Sydney in second place at 6.6%, and Hong Kong third with growth of 5.9%. Of the top ten cities ranked by rental growth, seven are in the Asia-Pacific region. Of the North American cities, Toronto saw the highest rental growth at 4.9%. London remains the most expensive city to rent an office in a tower in Europe, although rents were unchanged in the first half of 2016, albeit at a record level for the U.K. capital.

PRIME OFFICE RENTS FOR UPPER FLOORS IN SKYSCRAPERS



* Excludes exchange rate effects: conversion to U.S.\$ based on 30 June 2016 rates
Note: Upper floors is defined as above the regular skyline, thus offering panoramic views, but excluding the very top floors.

Source: Knight Frank, Newmark Grubb Knight Frank, Sumitomo Mitsui Trust Research Institute

SKYSCRAPERS SURGE HIGHER

WRITTEN BY
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+ In order to house the expansion of the Global Cities, new technologies are needed to build skyscrapers higher and bigger. Here are five new trends in building towers

01 NEW ELEVATOR TECHNOLOGY

Thyssen-Krupp is developing a MULTI elevator system prototype that has no cable. It is based on magnet technology, which would eliminate the need for a counterweight, freeing up internal space for other uses. Magnetic levitation and conjoined elevator shafts will enable the MULTI elevator to propel 'cars' through shafts running horizontally as well as vertically. This could in the future lead to exciting new mixed-use skyscraper complexes, where travel between offices, retail, convention centres, and transport hubs is seamless.

02 NEW MATERIALS

Cross-laminated timber is fast establishing itself as a quicker, greener and cost effective alternative to concrete or steel structural frames. Mass timber panels are produced by gluing layers of lumber together resulting in a material that can erect buildings that are just as strong and fire-resistant as those made from steel and concrete, yet can be drilled like wood and weigh 2.5 times less than that of an equivalent concrete frame. Whilst engineered timber has been widely implemented, the race is now on to construct the next generation 'Woodscraper', with various proposals in the pipeline.

03 NEW CONSTRUCTION TECHNIQUES

Modular offsite construction is an accelerating trend. In 2015, Chinese development company Broad Sustainable Building (BSB) built the world's tallest 57 storey flatpack tower in a record 19 days, or three storeys per day. Their goal is to build the world's tallest skyscraper using flatpack technology. Whilst this may be a way off, this alternative building method could transform the construction industry, offering a shorter timeline, less waste and possible cost savings.

04 BIOPHILIC DESIGN

Buildings are no longer simply structures, but are increasingly recognised as dynamic environments where the impact of office design has a direct bearing on occupant productivity, health, and well-being. As the world population continues to urbanize, access to green spaces, views to nature and abundant daylight are of increasing importance. Sky rise greenery, in the form of roof greening, vertical green walls and sky gardens has become a popular way for developers to differentiate and attract tenants, and tenants to retain talented staff.



The Shard, 20 Fenchurch Street, and The Leadenhall Building, London, U.K.

05 STABILITY AND AERODYNAMICS

Super high skyscrapers must withstand the powerful winds at high altitude, in addition to tolerating earthquakes. In the 32 years between the completion of the original World Trade Center and Taipei 101, there was only a 22% increase in height. In 2010, the development of the buttressed core structural system enabled the world's tallest building, the Burj Khalifa to skyrocket 2,716 feet, eclipsing Taipei 101 by more than 60%. This type of design gives buildings a stable tri-pod like stance with limited loss of space, redefining height possibilities for future skyscrapers. The buttressed core is being implemented in the currently under construction Kingdom Tower, set to reach 3,280 feet.

NEW TECH CITY

+ The rapid rise of the tech and creative sectors in recent years has reverberated throughout the New York City office market, causing fundamental shifts in the nature of workspace

WRITTEN BY

Jonathan Mazur, Managing Director, Research, Newmark Grubb Knight Frank and David Chase, Senior Research Analyst, Newmark Grubb Knight Frank

With the infrastructure in place for sustained long-term tech growth, developers and landlords are adapting strategies to respond to the new geography of demand. The creative model of office space – open floor plates, efficient layouts, and high ceilings – has become commonplace in many new developments, with developers adding amenities and outdoor spaces.

In 2015, TAMI (technology, advertising, media and information) tenants comprised 29% of the total square footage leased in the Manhattan office market, nearly double the 15% market share that TAMI accounted for in 2009. The sharp uptick in leasing activity directly corresponds with sustained tech and creative employment growth. New York City TAMI employment has increased

by 29% since 2009, surpassing the employment during the previous tech boom in the early 2000s by 8%.

Midtown South is firmly established as the epicenter of the tech and creative sector in New York City. TAMI's sustained expansion over the past several years has eroded the supply of available space in the area. Midtown South finished the first quarter of 2016 with a vacancy rate of 4.4%, the lowest of any CBD in the United States.

The heightened demand for space coupled with the tightening vacancy in Midtown South has caused a surge in asking rents. Midtown South rents rose to a record-high \$72.00 per sq ft in the second quarter of 2016, a 77% increase from 2010. Over that same span, the asking rent spread between Midtown South and Midtown,

Manhattan's traditional center of business, narrowed from 41% to just 13%.

The evolution of fledgling start-up tech firms into viable corporate entities has helped generate a large pool of TAMI tenants with the resources to pay top-flight rents for attractive and fully customized creative office space. This has caused a paradigm shift in the ways investors approach and evaluate real estate opportunities.

With the emergence of the tech sector as a main driver of the city's economy, the local government has invested significant resources into developing the infrastructure necessary to cement and sustain New York City's standing as a tech hub. The city has worked with Cornell University to develop a two million sq ft tech campus on Roosevelt Island, slated to open in 2017. Additionally, the city has invested \$7.2bn to establish tech incubators in Grand Central and the Brooklyn Navy Yard.

Also, New York City is in the midst of a demographic shift towards a younger workforce. According to a recent report from the NYC Comptroller's Office, millennials now represent the largest segment of the population in New York City, overtaking the baby boomer generation. The population of people aged 18-29 years old has grown by 132,000 from 2000 to 2014, with the technology and advertising industries seeing some of the largest rates of job growth among millennials.

While the New York City real estate market has already undergone major shifts as a result of the recent tech boom, the city is still in the early phases of a massive transformation.

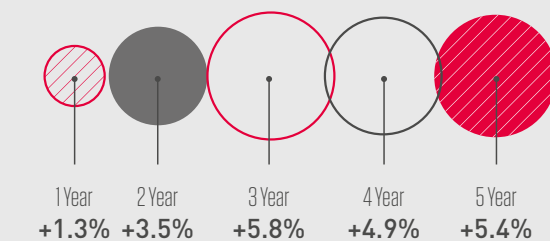
The unique type of space in Midtown South draws prospective TAMI tenants seeking alternatives to the traditional vertically structured glass and steel towers filled with large offices and cubicles so often seen in Midtown. TAMI tenants find Midtown South appealing because it offers unconventional loft style, exposed brick and ceilings, open layout floor plans with high ceilings and bench seating as well as building amenities such as collaboration spaces, bike rooms, coffee bars and roof decks/outdoor space.

3-YEAR EMPLOYMENT GROWTH COMPARISON (2013-2016)

TAMI (Technology, Advertising, Media and Information)



FIRE (Finance, Insurance, Real Estate)



Source: Newmark Grubb Knight Frank



TOMORROW'S WORLD: LONDON'S FUTURE BUSINESSES

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Firms at the cutting edge of innovation will form the next wave of demand for London offices

WRITTEN BY

James Roberts,
Chief Economist,
Knight Frank

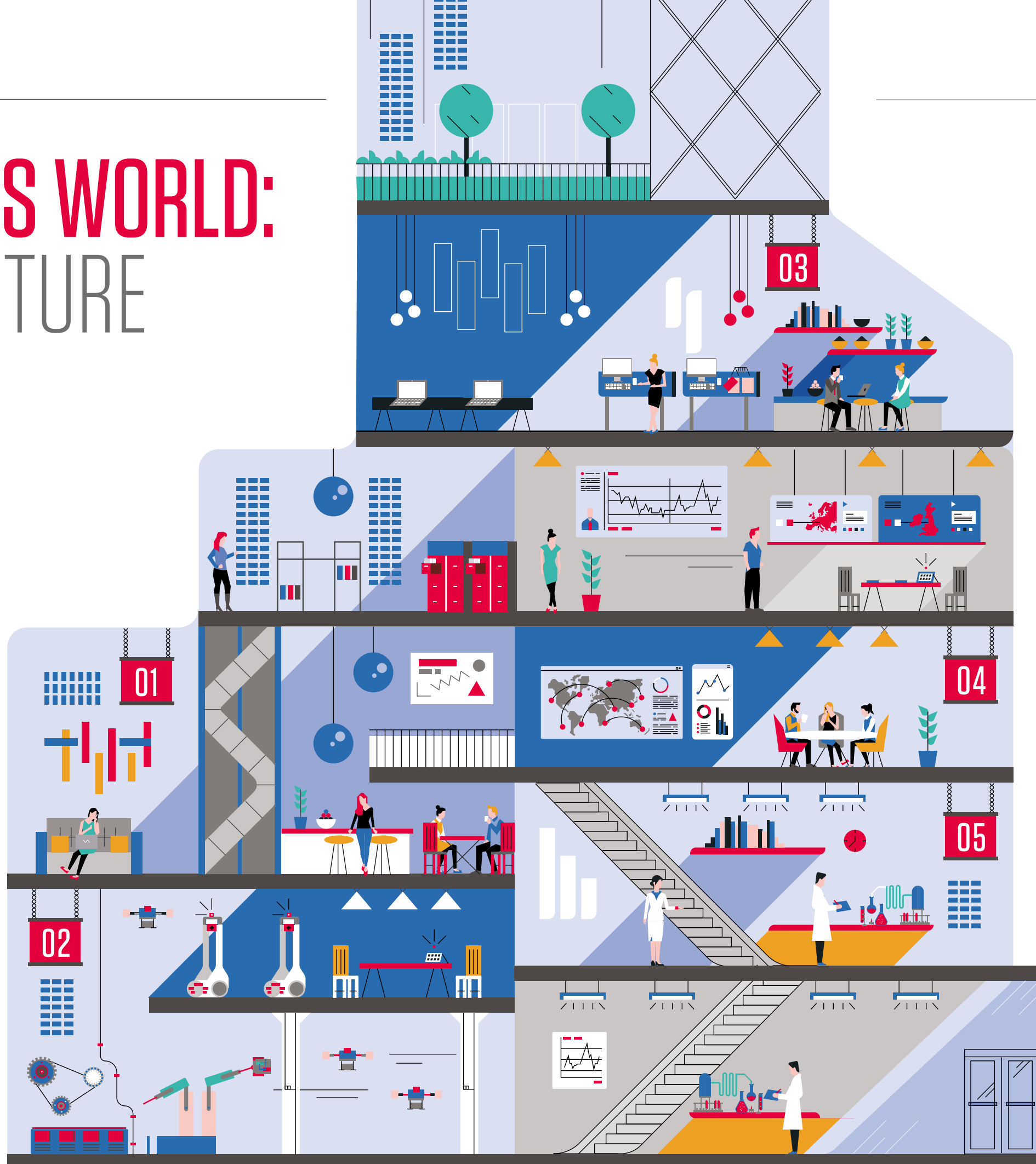
London has successfully positioned itself as a world-class innovation economy, with technology and creative clusters firmly established alongside the traditional financial, insurance and professional industry hubs. The capital has the vibrancy necessary to draw in all types of skilled workers, which in turn persuades new industries that they should locate in London.

The lesson of the last decade is that London must continuously attract firms and workers at the forefront of economic and technology change. Below are the firms and industries we see leading the next wave of innovation, generating future office demand.

01 BORN-AGAIN START-UPS

A growing trend is established companies wanting to re-introduce the start-up culture into their existing operations. Moving offices to a more vibrant district is often seen as part of the solution, as demonstrated by GE relocating its HQ from Connecticut to Boston. In a low interest rate environment, we see large corporations coming under shareholder pressure to invest their cash reserves, and demonstrate that they are re-inventing themselves to meet the challenge of tech disruption.

Several mature tech and media firms in London have already adopted the 'born-again start-up' strategy. However, with the digital revolution invading all aspects of life, we believe firms in industries not typically associated with Central London, like airlines and car manufacturers, will open innovation centres in the capital to stay ahead of the disruptors.



02 ROBOTICS AND ARTIFICIAL INTELLIGENCE (AI)

The next wave of the technology revolution is to be trail blazed by companies operating in robotics and AI, as testing continues on autonomous cars and commercial drones. With London already an established technology hub, we see robotics and AI start-ups favouring the capital, as computer simulation means more testing and development can occur in an office-type environment. Also, the regeneration of East London looks set to deliver affordable business space suited to these industries.

03 RAINMAKER LAUNCH PADS

Some legal firms in London have long operated 'Mexican wave' systems whereby a partner in London wins work, that is emailed to a junior member of staff in a regional office who does the actual drafting of documents. This allows the firm to leverage the access to clients and high value rainmakers in the capital, but with the lower operating costs in the regions. The approach could be applied to other industries.

Under this model, the London office does not lose its significance, but it will change in nature. There will be a move away from accommodating staff and desks, and towards offering meeting rooms and conference facilities, supplemented by hot desks and break-out space, for an office where the human traffic ebbs and flows. Such offices will need to be in a central location for the rainmakers to minimise their journey times between meetings; and provide an exclusive address for the letterhead. This could create a market for high quality and well located C-suites.

04 RE-CENTRALISING FINANCE

Fintech is leading the way in financial innovation. However, when acquiring new office space such firms are encountering higher rents in places like Shoreditch and Clerkenwell, as they compete against other tech industries for a diminishing pool of high quality space. Yet for fintech the long-term benefits of clustering with companies producing video games or phone apps is limited in scope, and there are potential benefits from being near to their finance sector customers.

This creates the logic of fintech forming its own cluster, with the City Core offering the advantage of bringing it into the finance world proper. Indeed we may see other tech sub-sectors breaking away to form new clusters nearer to client industries, e.g. media-focussed tech firms moving to Fitzrovia.

05 SCIENCE IN THE CITY

Scientific R&D has typically been associated with out-of-town business parks, particularly around Cambridge and Abingdon. However, recent years have seen hi-tech firms (another out-of-town stalwart) moving into London, as companies relocated to where talented staff wanted to live. Scientific R&D is similarly a people business. There is also an established research cluster in Bloomsbury, which should benefit from the redevelopment of Euston and King's Cross as vibrant live/work locations. The Francis Crick Institute has opened a new life science laboratory in King's Cross, partly due to the rail link to Cambridge.

+

Unlisted tech firms who were valued at over a billion dollars, 'Unicorns', were viewed just a year ago as a new phenomenon. Such is the pace of growth we are now seeing the emergence of 'Decacorns' – with values above \$10 billion. Who are the CEOs behind these companies?



WRITTEN BY
Raconteur

EVAN SPIEGEL, SNAPCHAT



"Let's just take a shot at restoring some context." That was Evan Spiegel's modest goal when he laid the foundations for the picture-messaging app in his Stanford University dorm room in April 2011. Like many tech entrepreneurs before him, he dropped out of college to pursue his idea. Now, at just 26, he runs a company valued at \$16bn.

Snapchat's young user base – predominantly people in their teens or 20s – seems to have endorsed Spiegel's central observation that pictures spontaneously taken and shared on smart phones should not necessarily live forever on a searchable database. The company now boasts 200 million active users.

As well as its headquarters in Venice, Los Angeles, the company has offices in Seattle, New York and London, and around 330 employees, and counting, as it brings on new hires.

MEET THE THE DECACORNS



wework.

ADAM NEUMANN, WEWORK

In February 2014, WeWork was valued at \$1.5bn. Now, a little more than two years later, it is worth \$16bn and has hired 900 employees in the past year alone, bringing the employee count to just over 1,200. However, is Adam Neumann a tech entrepreneur or a real estate magnate?

While chiefly a provider of collaborative offices, WeWork's 6'5", leather jacket-wearing, Israeli-born CEO likens the firm to a smartphone's operating system. It brings buildings to life in the same way that Android or iOS makes a smart phone much more than the sum of its parts.

The seeds of WeWork were sown in 2008 when Neumann, a serial entrepreneur, partnered with his co-founder Miguel McKelvey to create an ecologically-minded co-working space, GreenDesk. Both Neumann and McKelvey had experienced communal living as children – Neumann on a Kibbutz and McKelvey in a collective of mothers and their children that was formed in Oregon. After GreenDesk morphed into WeWork, WeLive was not far behind. The company's first communal living space launched in New York in January and there are ambitious plans to have opened 68 more by 2018. At present, WeWork has a presence in 15 cities within the U.S. and 11 more globally. More offices are planned for Sydney and India.

Neuman says the company could also expand its range of products to include shipping, software, credit cards, travel, payroll, banking, and training. Eventually members might be able to sign up for these alone, without having to rent space in one of the company's buildings.

Palantir

ALEX KARP, PALANTIR

With the controversy surrounding government intelligence agencies, Wikileaks, Julian Assange and Edward Snowden still fresh in the memory, you could be forgiven for being a little suspicious of a man who runs a company that has been referred to as a "combination of big data and Big Brother", been backed by the venture arm of the CIA (In-Q-Tek), and also counts the NSA and FBI among its customers.

However, Alex Karp is at pains to argue that his business is not the malevolent Orwellian entity that some people imagine. "I didn't sign up for the government to know when I smoke a joint or have an affair," he once said. "We have to find places that we protect away from government so that we can all be the unique and interesting and, in my case, somewhat deviant people we'd like to be."

Karp is known as the company's "conscience" and readily admits that his lack of technical qualifications makes him a slightly incongruous figurehead for such a complex operation. He has been called "sheer brilliant" by former head of the CIA, General David Petraeus, and he went to Stanford Law with the now-legendary Silicon Valley investor, Peter Thiel. Eleven years after the college buddies reunited to set up Palantir, the company has 19 offices around the world, including its Palo Alto HQ, about 1,800 employees and is valued at \$15bn.



A DAY IN THE LIFE OF DIVYA NARENDRA



ASTOLD TO
Raconteur

More than a decade on from co-founding Facebook antecedent ConnectU with the Winklevoss twins, Tech entrepreneur, Divya Narendra, is making waves with a social network for investment professionals, SumZero

I usually get up between 7am and 8am, when I open the Bloomberg News app on my cell and read the top articles. Then I'll walk over to my office in Soho to be at my desk between 9am and 9:30am. Although I hate to admit it, I usually skip breakfast and keep myself going until lunch with a banana or two.

My typical day at work is a mix of wading through emails, client calls, demos, book-keeping and team meetings. Functionally speaking, I probably spend the greatest proportion of my day focused on helping our sales team with leads and account management, but I also try to reserve time to think about the various initiatives we have to drive user engagement on SumZero. Greater engagement means more high quality, user-generated content that will in turn attract people to join our community. That's how we see SumZero becoming a must-have resource for investment professionals around the globe.

In terms of SumZero's potential for growth, the sky is the limit. We're aiming to provide value-adding services to investment professionals throughout the various stages of their careers and to connect members of the investment community, no matter where they are in the world – although, I do still think that there will always be those who value physical proximity and the benefit of living and working in large financial centres.

In tech hubs all around the world, people have seen the number of unicorns and decacorns rise and started to question whether we might be in a bubble. I would argue that investors should be extremely cautious with how they size up private market investments, in particular. I'm sure a few will do well in the long-run, but the reality is that many will see their valuations collapse once they are exposed to the public markets. We've already seen a several publicly traded technology stocks fall dramatically post-IPO or within the last year (for example: LNKD, TWTR, BABA, JD, BOX, and ETSY). Even Apple shares have struggled recently, with many investors now thinking of it as a deep value stock. However, I think the signs suggest that, as a whole, the industry is still trading at reasonable levels.

After a day in the office, I often head straight to the gym, which I find helps me keep my mind clear and recharge for the next day. My gym also has the advantage of being close to Wholefoods, so I can grab some produce before walking home and making dinner.

LIVING IN THE CITY

*Houses in Primrose Hill,
London, U.K.*

WRITTEN BY

Liam Bailey,
Global Head of Research,
Knight Frank

+

Cities are competing to regain their vibrancy. The ones which make true mixed-use work for them will win

The main character in most of Charles Dickens' books is London; "wealth and beggary, vice and virtue, guilt and innocence...all treading on each other and crowding together" (Master Humphrey's Clock). For the great chronicler of arguably the world's first global city the vitality, crime and poverty of what was then the largest city in the world, drew him in and became his obsession.

What made Dickens' London so interesting and surprising a place, as with most large cities of its time, was the dense mix of activities. Residential and commercial areas were one and the same, with housing, small-scale manufacturing, shops and offices creating a street life full of variety and energy.

The downside to this organic and chaotic mix was endemic poverty, disease and pollution. Spend an hour reading Friedrich Engle's descriptions of urban life at the time and the scale of the problem becomes clear. The response in London, and throughout the developed world, has been almost a century of planning rules and legislation with one overriding objective – zoning: the separation of the city's activities into more regular and controllable spaces.

The problem is zoned cities are generally dull. So, for several decades, cities have been trying to untangle the restrictions they put in place. Mixed-use may be an overused term for developments, many of which often do not deserve the title, but it reflects a clear shift in priority from city authorities, developers, occupiers and residents.

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Dubai and Miami are expanding in culture and technology in order to gain millennial appeal as cities

26 DE-ZONING

Cities are breaking down old district boundaries, creating opportunities for retail in a mixed-use setting

28 DESIGNS ON THE FUTURE

Architect and interior designer, Christophe Carpente, discusses the latest trends in luxury store design

29 CBD LIVING IN MELBOURNE

The city centre of Melbourne is transforming into an exciting new live/work location

CONTINUED FROM

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This desire to make cities more interesting places has coincided with a number of related trends which are propelling true mixed-use to the forefront of development activity. The 'war for talent' has been a critical driver, with cities competing ever harder to nurture the right ecosystem to attract the best workers. Put bluntly, if you are the right side of 40, well educated, tech-savvy and have an interest in art and culture then you are in demand.

While not every city has an environment that immediately appeals to this group – somewhere inbetween San Francisco, New York and east London – a number are finding that they can create it. Sofia Song and Dana Salbak discuss below how Miami's focus on high-end residential development provided a catalyst for innovation in retail and design industries, whereas Dubai's skill at urban repositioning focused initially on tourism following the financial crisis, before widening into the creative sectors of the economy.

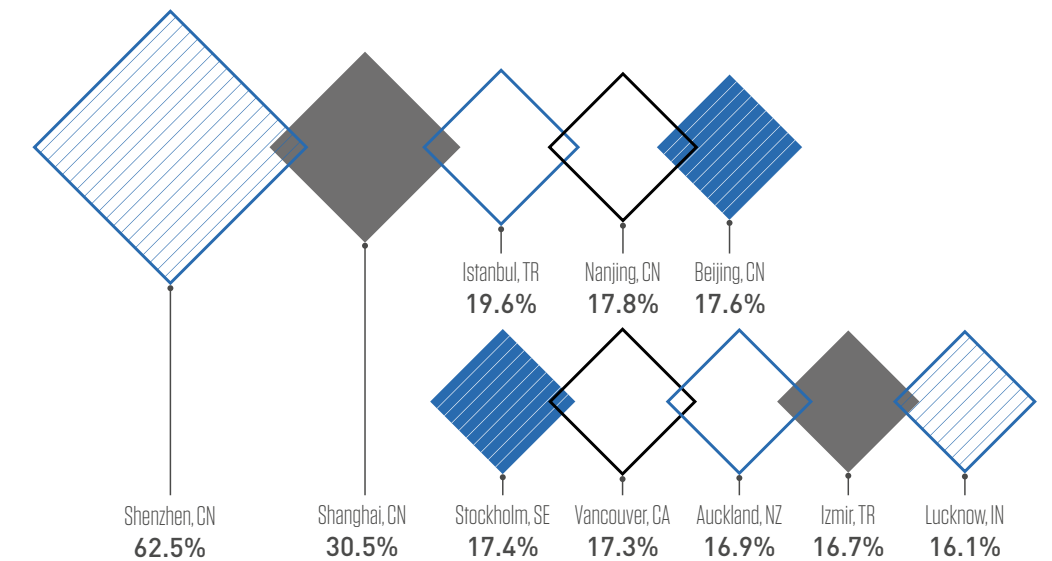
The challenge for city authorities is balancing their top-down approach to regeneration without undermining the authenticity that talented workers appear to demand from their working and living environments. Put simply – how do you create creativity?

In some cases it is a simple process – the happy confluence of cheap space and accessibility were the twin drivers behind the transformation of Shoreditch in London and Brooklyn in New York. In other locations, especially those without the advantage of several million affluent workers on their doorstep, the top-down approach is a valid route forward. However, the journeys that cities take are varied.



MAINSTREAM HOUSE PRICES, ANNUAL % CHANGE TO Q1 2016

Source: The Knight Frank Global Residential Cities Index



Williamsburg, Brooklyn, U.S.

Old Street, London, U.K.

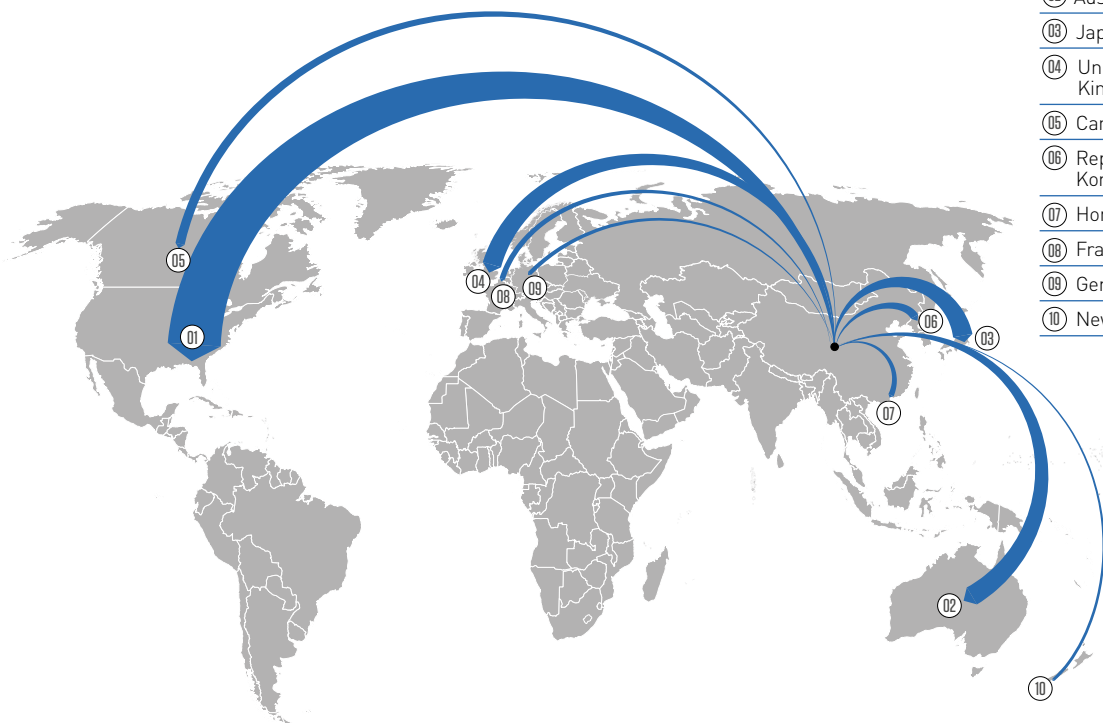
Culture, as a means to create diversification of land-use and to broaden the appeal of a city, is well established, and Miami's Art Basel event is only one high-profile example. Where art or museum quarters lead, retail and restaurant culture follow.

As The Wealth Report confirms, education is a key driver underpinning residential demand. Over 25% of all UHNWIs considering changing their country of residence in 2016 name this as the key push factor. Universities in particular have a real ability to encourage commercial development, especially supporting research and development requirements – attracting high skill employment. Student accommodation has a similar significant potential to add density and vitality to existing residential or commercial neighbourhoods, supporting retail and restaurants.

WHERE DO CHINA'S STUDENTS STUDY ABROAD? (NO. OF STUDENTS, 2013)

Source: UNESCO

01	United States	260,914
02	Australia	90,245
03	Japan	89,788
04	United Kingdom	86,204
05	Canada	42,011
06	Republic of Korea	38,109
07	Hong Kong	25,801
08	France	25,388
09	Germany	19,441
10	New Zealand	13,952



“WHERE ART OR MUSEUM QUARTERS LEAD, RETAIL AND RESTAURANT CULTURE FOLLOW”

With schools and universities creating new campuses in cities around the world, this is an area of significant future growth. The ongoing encouragement of innovation hubs and incubators for new industries is also likely to be another source of change, with private sector sponsors increasingly acting alongside or in place of public sector champions.

Layering other uses into the urban mix is a key focus for cities in their bid to maximise their attractions to current and future residents and commercial occupiers. One of the biggest growth areas we see is health and fitness, an industry which has moved far beyond the obvious gym and swimming pool offer, with the intelligent use of the city as the enabler of fitness – most visibly through the encouragement of cycling.

With Christophe Carpentre's insights from the luxury retail sector, below, pointing the way towards a desire for more localism, individuality and a more human scale within development – the move towards a more engaging and mixed urban environment is clear.

Dickens would approve.

BOUNCING BACK ON REINVENTION

By focusing on innovation and creativity Dubai and Miami are strengthening their millennial appeal, reinvigorating their residential markets

WRITTEN BY

Dana Salbak,
Middle East Research,
Knight Frank and Sofia Song,
Executive Vice-President,
Douglas Elliman

DUBAI'S TOURISM-LED RECOVERY

Dubai's market recovery in 2012 was largely led by the tourism industry. Following the outbreak of the Arab Spring in early 2011, traditionally popular tourist destinations in the Middle East like Cairo lost their appeal amid heightened security concerns. Dubai's safe haven status, aviation hub, world-class hospitality and retail offerings, meant it was well placed to benefit.

The housing market reached peak performance in 2013 when it was announced Dubai would host the Expo 2020, fuelling speculation on its impact on job growth and tourism. High profile announcements of new schemes such as the Mohammed Bin Rashid City (a multi-billion dollar mixed-use development) further buoyed confidence in the recovery.

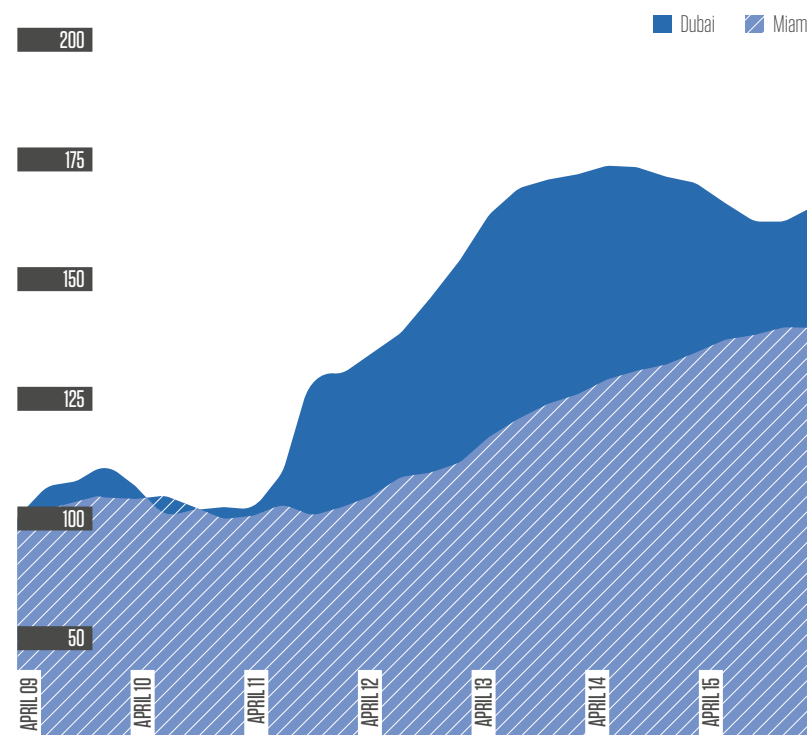
To avoid a market oversupply new laws introduced by the Real Estate Regulatory Agency controlled the off-plan sales market and construction. Coupled with higher transfer fees and revisions to the mortgage law, this helped to deflate a potential real estate bubble.

With this emerged a re-branding strategy to shake off Dubai's negative image following the downturn. Known for being the leading financial hub in the Middle East and North Africa (MENA), Dubai positioned itself as the frontrunner of creativity and innovation in the region. Government funding encouraged a favourable environment for artists and entrepreneurs.

DUBAI AND MIAMI PRIME HOUSE PRICE INDICES SINCE THEIR GFC LOW POINT

Indexed: 100 = Apr 2009

Source: Knight Frank, Douglas Elliman



Sheikh Zayed Road,
Dubai, UAE

Central Business
District, Miami, U.S.



2014, Microsoft launched its first U.S.-based Microsoft Innovation Center in Miami-Dade County to generate more high-tech jobs.

Perhaps the biggest driver of Miami's transformation from sunny vacation spot to the cultural and liveable city that it is today is Art Basel. Launched in Miami Beach in 2002, this premier arts and culture event established Miami as a key destination for ultra high net worth individuals every December - encouraging many to take up residence for longer stretches of the year. Consequently, art districts, new restaurants and galleries opened, helping to transform Miami into an international center for art and design.

Residential development led the charge in Miami's recovery and retail is just now coming to fruition. The Brickell City Centre supermall, Miami Design district shopping area and Wynwood Arts District are top retail destinations, and the past decade also gave rise to many of the city's cultural venues such as the New World Center concert hall, Pérez Modern Art Museum, and Frost Science Museum.

ACADEMIC CENTRE

The arts, culture and sophistication that Miami offers has attracted a younger generation. Some of the elite private schools from New York are looking to develop in Miami as well appealing to affluent families. The University of Miami has also enhanced its curriculum with its business and law schools now among the top ranked in the country.

Miami's housing market recovery was largely driven by foreign capital as international investors took advantage of soft prices coming out of the recession and advantageous currency exchange rates. Over time, the broader domestic market sought out luxury properties at discounted prices.

Since 2013, as the market recovered, most of the residential development has focused on the ultra-luxury market of larger units where high-end finishes and technology packages are commonplace. Developers have also recalibrated their amenity offerings post-recovery, gone are the small gyms and billiard rooms, and in their place are art studios, yoga studios and smart home technology.

ART AND TECH HUBS

Specifically designed art hubs and fashion venues like the Al Serkal Avenue and the Dubai Design District offer dedicated exhibition spaces and learning opportunities (e.g. Short Course programmes from the University of Arts London) aimed at attracting a young and creative generation. In early 2016, the Dubai Chamber of Commerce and Industry together with IBM launched the 'Dubai Digital Entrepreneurship Hub', to support technology start-ups in the emirate. Similar efforts include AstroLabs Dubai, the only Google tech hub in MENA.

As Dubai hopes to attract young, innovative and tech savvy individuals through similar initiatives, developers have realised the need to develop real estate that caters for a range of consumer income levels. A comparable review of the current market supply of residential product versus upcoming projects reveals that developers are reducing the size of apartments in order to make them more affordable.

MIAMI TECH

Miami is also re-inventing itself as a creative and technology industries hub, with implications for the real estate market.

While Florida has long attracted wealthy residents and businesses thanks to tax incentives, such as no income tax, Miami-Dade County is encouraging business development in other ways. In

DE-ZONING

THE FUTURE FOR RETAIL'S 'URBAN UTOPIA'

+ New opportunities can be seized in urban retail by tearing down the old boundaries

WRITTEN BY

Stephen Springham,
Head of Retail Research,
Knight Frank

Urbanization transcends all facets of society: where we live, where we work, where we shop and where we choose to spend what little leisure time we have. Urbanization is also a very real global trend. Figures from the United Nations show that 54% of the world's population now resides in urban areas, compared to just 30% in 1950. The figure is projected to reach a staggering 66% globally by 2050.

The implications for real estate could not be more far-reaching. However, the trend towards urbanization runs counter to the general tide of retail development in particular over the last 50 years, which has seen ever greater emphasis placed on out-of-centre destinations, be they food superstores, edge-of-town retail warehouses or regional shopping malls. In simple terms, retail facilities are increasingly located further away from where rising numbers of people are choosing to live.

This imbalance has thus far only partially been redressed. Mixed-use schemes have long been an industry buzzword and are increasingly becoming an urban reality, but they only scratch the surface of the opportunity. All too often, the reality of mixed-use developments is a substantial office and/or residential element, with a complementary but understated retail and leisure offer comprising a convenience store, a coffee shop and a couple of branded restaurants. There is nothing flawed in the basic psychology of marrying homes and workspace with retail and leisure, but the concept can be executed on a far larger and more ambitious scale.

The trend in urbanization also runs counter to many real estate planning principles. Real estate likes the order and logic of zones – CBD, shopping district, leisure circuit, theatre land, or cultural quarter, for example. However, true urbanization recognizes none of these artificially engineered boundaries and the utopia of urbanization is a melange of real estate facilities that goes far beyond mixed-use as we know it. A place left to the natural process of urbanization would combine residential, office, retail and leisure in a non-uniform environment. The order we have become accustomed to will not be replaced by chaos – rather, a sense of vitality and diversity which are pre-requisites for every successful location and indeed, a fundamental to retailing in particular.

Hoxton Square,
London, U.K.



Meatpacking District,
New York City, U.S.

What will the retail and leisure component of 'urbanized utopia' look like? The leisure element is more easily defined – a plethora of eating and drinking establishments catering for every price point and every international palate. The retail element is harder to classify, but will definitely go beyond a standard convenience-based offering. Expect high street multiples to feature heavily, away from their traditional shopping mall and prime destination homes. Contrary to hackneyed belief, the future of shopping is not online, but multi-channel. Urban store based locations as a seamless dovetail joint with digital capability could be the ultimate realisation of the often elusive multi-channel dream.

This 'urbanized utopia' is only at the very early stages of evolution. However, examples are emerging, unsurprisingly in areas that are heavily urbanized, land is in short supply and population growth is on an upwards trajectory. London certainly ticks all three boxes and good examples of urban centres of the future are already in evidence. Areas such as Hoxton and Shoreditch are blueprints as to how the modern urban quarter may evolve. Driven partly by creep of the City's footprint, previously unloved and in many cases derelict warehouses and seemingly unclassifiable general commercial buildings have been given a new lease of life as residential blocks and trendy office spaces. The retail and leisure proposition has more than kept pace and the breadth of the offer caters for far more than the immediate resi and worker audience. Hoxton and Shoreditch are now leisure destinations in their own right, in a way which would have been unthinkable a decade ago.

Examples of thriving modern urban quarters are, of course, not restricted to London. Similar examples in the U.S. include the Meatpacking District in Manhattan, Williamsburg in Brooklyn, and Fulton Market in Chicago. Perhaps the best examples are found in the Far East, in cities such as Tokyo, Shanghai, and Hong Kong. It follows that conurbations with the largest urban populations are leading the way in the evolution towards urban utopia. In this instance, the West may have much to learn from the East.

URBAN NOT SUBURBAN

+ In Chicago retail, suburbia is losing its appeal

WRITTEN BY

Joe Klosterman,
Research Manager,
Newmark Grubb Knight Frank

A new development trend has emerged in Chicago that differentiates the current retail development cycle from those before. Annual deliveries have averaged less than 3.0 million sq ft since 2007, a rate less than half of the 15-year average and only 27% of the 10.7 million sq ft completed in 2006, when the last development cycle peaked.

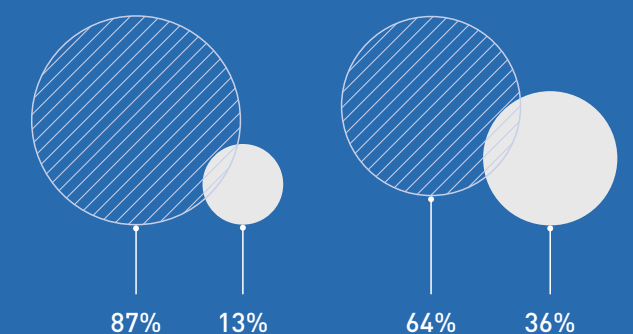
As deliveries have receded, urban submarkets have captured a greater share of the market's new supply. Since 2013, 49 urban developments have delivered a total of 3.1 million sq ft to the market, with another 2.7 million sq ft of product under construction or proposed. The development occurring in the city is smaller in scale and concentrated in the north side lakefront neighborhoods where there is an established residential population with higher earnings and education levels. This contrasts with previous decades, when big-box, automobile-centric construction dominated suburban submarkets, often preceding large scale residential development and population growth.

Over 1.0 million sq ft of new space will come online in the urban submarkets in 2016, and the trend is expected to continue as millennials and empty nesters choose to reside in the city. Developers and investors will follow suit, betting more of their capital on Chicago's upscale urban neighborhoods.

SHARE OF NEW RETAIL DEVELOPMENTS

○ New suburban developments
1990-2008

● New urban developments
2009-2015



Source: Newmark Grubb Knight Frank

De Beers store at Galeries Lafayette, Paris



DESIGNS ON THE FUTURE - CHRISTOPHE CARPENTE

+ The architect and interior designer responsible for over 500 luxury retail stores worldwide says capturing the attention of well-informed, design-conscious individuals is now paramount

WRITTEN BY

Claire Adler

Christophe Carpente, founder of Notting Hill based practice CAPS, has carved out a career designing and building retail stores for some of the biggest names in luxury, including De Beers, Cartier, Boucheron, Bulgari, Hugo Boss and Burberry. His work encompasses graphics, packaging, lighting, visual merchandising, offices and showrooms and ranges from entire buildings to a 1cm ring holder. Swarovski, Vertu and Pandora have implemented Carpente's designs in their stores round the globe.

The way consumers interact with luxury brands has changed radically and this is now translating directly into the thinking behind luxury store design, Carpente believes.

"Luxury brands are increasingly determined to communicate a sense of individuality. They're opting for smaller stores, less boxed-in sections, more open floor plans and they are clocking a penchant for concept stores," says Carpente. "Take Louis Vuitton. It has reduced the size of its formerly cathedral-like stores and has collaborated with fashionable concept store Dover Street Market on limited edition, highly collectible handbags. It's a context where consumers prefer buying quality items locally rather than entering the universe of a corporate

giant. There is even a parallel in the world of supermarkets, where mini supermarkets are now cannibalising corner grocery stores."

Carpente recently designed stores in Taipei and Shanghai for jeweller Hearts On Fire, owned by Chinese jewellery giant Chow Tai Fook. Reflecting a global trend for locally-styled stores, Hearts On Fire's Shanghai location includes sparkling chandelier fixtures representing a starry moonlit sky, while the Taipei store, positioned within fashionable 24 hour concept book store Eslite, is more subtle and intimate, with a central communal table encouraging conversation between shoppers. Design has evolved to make consumers feel more at ease within stores, explains Carpente. "Originally at De Beers, we made a bold, dramatic statement with plain black walls and glass partitions. Today, the stores are softer and more feminine, incorporating oak instead of ebony. If you look at Chanel, the materials are rich and luxurious, but the overall designs are simple, inviting visitors to walk through."

Perhaps unsurprisingly, the internet and social media have driven the desire for individualistic, seek-and-you-shall-find experiences, which has in turn prompted more approachable and welcoming luxury spaces.

"These days, before consumers even step foot into a store, they might be armed with more information than sales staff. Prior to online shopping, sales staff had the upper hand. That relationship is now transformed and it's reflected in store design. In the 90s there was the grey, cold enormity of Calvin Klein's store on Madison Avenue, in the 2000s we had the maximalist opulence of Gucci and Versace. Nowadays, luxury brands compete not just with other maisons but with creative individuals, working in a range of crafts and locations, who are launching successful brands by garnering their own following online and offline," says Carpente.

With purchases of jewellery, watches and valuable gifts in Hong Kong having taken a plummet south recently - down 23% in the first quarter of 2016 according to Bloomberg Intelligence - Carpente believes we could soon see reduced demand for new stores and cost pressure on store builds.

"There's nothing like an economic cycle to spark a new design trend. Hugo Boss has been negotiating worldwide with its landlords to secure lower priced rental agreements. If Hugo Boss is doing it, you can be sure others are following. We may see a trend for simpler, less extravagant store design, he says."

Claire Adler is a writer, speaker and consultant on luxury goods, and a regular contributor to the Financial Times.

WASHINGTON'S HOTEL MARKET

+

Washington's hotel market sees robust fundamentals with demand likely to strengthen in the lead up to the presidential inauguration in 2017

WRITTEN BY

Bethany Schneider,
Senior Research Analyst,
Newmark Grubb Knight Frank

The Washington, DC, metro area's hotel sector has performed well over the past few years, with occupancy, average daily rate (ADR) and revenue per available room (RevPAR) all rising steadily since 2013. The hospitality sector is important in this region, as some of the largest and most notable hotel chains in the world are headquartered in the Washington metropolitan area, including Hilton, Marriott and Choice Hotels.

The hospitality sector in the Washington region is driven by business from the U.S. Federal Government and its contractors in the private sector. As a result, room rates for the midscale to upscale sectors are closely tied to the government's per diem rate, and these sectors capture the bulk of the region's hotel demand. However, the region still sees strong demand for luxury accommodations from private sector business travel and tourism, and that sector—while a much smaller segment of the market—continues to perform well.

Because of the steady demand created by the government, much of the region's new product delivered in recent years has been in the mid-to-upscale segment that falls within the per diem parameters. Over 2,000 rooms are under construction as of mid-2016—mostly select-service chains like Homewood Suites, Hampton Inn and Hyatt Place. However, the luxury segment of the market also has new product in the pipeline. The Trump International Hotel will open in late 2016, a renovation of the old Post Office Pavilion and the region's first new luxury hotel in three years. The hospitality investment sales market in the region has experienced strong growth since 2013, with \$1.2bn in sales volume in 2015, significantly above

the region's five-year average of \$966 million, as strong market fundamentals continue to drive investor interest.

Washington-area hotel market fundamentals will likely continue to grow in 2016, as a sturdy national economy provides consumers with more disposable income for leisure activities. In addition, continued strong regional job growth contributes to increased demand for hotels from inbound business travelers. The area's tourism sector also continues to provide steady demand. Headwinds in the year ahead could include decreased demand from international travelers as a result of the strong dollar.

Looking forward to 2017, the presidential inauguration will generate outsized demand for hotels. Several significant projects are slated to open in time for the inauguration of the 45th U.S. president. These include the Trump International Hotel and the grand re-opening of the Watergate Hotel after its recent \$125 million renovation.

NUMBER OF ROOMS DELIVERED



Intercontinental
The Willard,
Washington, U.S.



GO EAST



CGI of Here East, Stratford, London, U.K.

+

It isn't 'co-working' and it isn't 'a science park' – the man heading up Here East in Stratford, London, says the mixed-use development is so much more

WRITTEN BY
Raconteur

"Gone are the days when you just needed 'an office'," says Gavin Poole. "Now businesses are looking for space to operate that will give them a competitive advantage."

Poole says they will find that competitive advantage at Here East, a 1.2 million sq ft campus for the creative and digital industries in Stratford, East London. Here East is being developed by iCITY, a company owned by clients of Delancey, a specialist real estate investment and advisory company.

Poole, who is CEO of Here East, acknowledges both the recent growth in popularity of co-working spaces such as WeWork and Second Home, and also the importance of out-of-town science and R&D hubs. However, he says Here East sits between these two ideas, as something "totally unique," because of the range of organisations and facilities that will coalesce.

"We're creating an environment where businesses can work alongside each other," he says. "They will be putting on events, discussions and have access to the right type of facilities to allow them to come together in a structured yet serendipitous way to learn, work and push the boundaries of education."

The scheme, which will have space for 5,500 workers, is based around the redevelopment of two vast buildings that were used as the press and broadcast centres for the 2012 London Olympics. Part of this space has already been taken by BT Sport, which is three years into a ten-year lease on the site, while another chunk has been allotted to an Infinity data centre that, along with the telecoms infrastructure that was laid for the Olympics, should be a substantial draw for businesses.

In addition to that, the site will be a hub for education. A Loughborough University entrepreneurship MBA, which has already been taught for a year, will be joined by the University

College London's (UCL) Faculty of the Built Environment and UCL Engineering, which will house the university's manufacturing and prototyping facilities. This, Poole adds, is part of the reason that Here East has so much potential – with product design and prototype manufacture being possible all in one, well-connected, creative environment.

All this fits in with the transformation of the Stratford area, with its giant Westfield shopping mall, thousands of homes in the pipeline, and new offices under construction in The International Quarter for Transport for London and the Financial Conduct Authority. The Olympics site has re-opened as the Queen Elizabeth Olympic Park, where the stadium hosts Premiership soccer team, West Ham United.

Alongside the tech and creative businesses that Poole hopes will push Here East to almost 100% occupancy by the summer of 2018, other types of creative organisations will take space – internationally acclaimed choreographer Wayne McGregor is one of the first and will have a custom-fitted studio.

Poole says the scheme is in keeping with other creative hub developments around the world, such as Cyber Port in Hong Kong, RDM Campus in Rotterdam, Euratechnologies in Lille, and Industry City and New Lab, which are both in Brooklyn. Importantly, Poole says, Here East is intended to be an entity that will interact with the rest of London, drawing on the impetus of what he describes as "the eastward march" that the city is witnessing by complementing nearby developments at East Wick and Hackney Wick.

"WE'RE CREATING AN ENVIRONMENT WHERE BUSINESSES CAN WORK ALONGSIDE EACH OTHER AND COME TOGETHER IN A STRUCTURED YET SERENDIPITOUS WAY"

CBD LIVING IN MELBOURNE

WRITTEN BY

Richard Jenkins, Director and Kimberley Paterson, Senior Analyst, Research & Consulting, Knight Frank Australia

+

The Melbourne CBD has undergone significant transformation over the past decade, as strong growth in city living is encouraging a new wave of mixed-use development

Internationally recognized as the world's most liveable city (according to the EIU), population growth has been a key economic driver for Melbourne. Increasing at a rate of 1.8% per annum over the past decade and adding 91,600 people over the past year, Melbourne has become Australia's fastest growing state capital city. This growth has been more pronounced in the CBD, with a push towards inner city living evolving in the early 1990's in response to Melbourne's postcode 3000 policy.

Meeting the demand for Melbourne's inner city living, the number of residential apartments has increased three-fold over the past decade. Nevertheless, the emergence of residential dwellings does not stand alone. Office stock in the Melbourne CBD has grown by one million square metres over the last decade and is now the second largest office market in Australia (behind Sydney), with CBD-based employees increasing by 24% over that time. In contrast, retail supply has lagged, increasing by only 92,500 sq m since 2005.

Major mixed-use projects are a relatively new phenomenon for Melbourne. One of the earliest, the QV Complex, was completed in 2005 and comprises high density residential, retail and office. A decade later, rapid growth in the resident and workforce population, is transforming the ways in which people want to live and work with new opportunities for mixed-use development emerging. Siteworks has recently commenced at 447 Collins Street, where Cbus Property has a high rise scheme adding 400 residential dwellings, 50,000 sq m of office space, 3,000 sq m of retail space, and a further 250 hotel rooms.

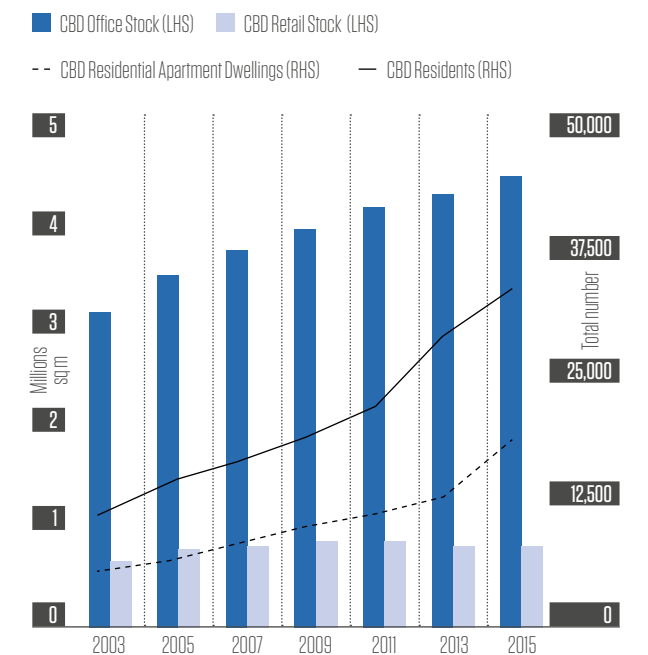
Looking ahead, Melbourne's population is projected to surpass Sydney by 2036. With a large proportion of new residents residing within inner city suburbs, combined with a distinct trend of occupiers migrating from the suburbs to the Melbourne CBD, there is a growing opportunity for mixed use development within the CBD and the city fringe. The 30 year urban renewal project at the Fisherman's Bend precinct covering 450 hectares in Port Melbourne will include new high and medium density mixed commercial and residential development for up to 80,000 residents and a working population of 60,000 by 2046. Adding to this is the iconic Richmond Malt site located three kilometres from the Melbourne CBD mooted to incorporate a mixture of commercial office, retail and residential, regenerating a historical industrial location.

The emergence of mixed use projects offering investment opportunities of scale and diversification is likely to maintain Melbourne's high position as a global destination of foreign and institutional capital.



Melbourne, Australia

GROWTH IN CITY LIVING DRIVING MIXED-USE DEVELOPMENT MELBOURNE CBD OFFICE & RETAIL STOCK VS RESIDENTS & DWELLINGS



Source: Knight Frank Research, ABS, City of Melbourne

THE MARKET CYCLE

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The forces of disruption sweeping the global economy are also shaping how occupiers view real estate

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The dark days of the Euro Crisis are far behind the Irish capital, which has plugged into the tech revolution

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We highlight three emerging trends that will generate opportunities for global real estate investors in the coming years

48 A THOUSAND FUTURES FOR PARIS

A unique approach to auctioning development sites promises to keep Paris a centre of original architecture

*Canary Wharf,
London, U.K.*

WRITTEN BY

Dr Lee Elliott,
Head of Commercial Research,
Knight Frank

+

It has been enough to test even Homer Hoyt, the doyenne of property cycle analysis

The eight years post financial crisis have sent mixed signals to even the most seasoned of market observers. The complex intersection of the economic cycle, the business cycle and two distinct property cycles – one relating to real estate supply and demand, the other relating to capital flows and their impact on pricing, has brought confusion and uncertainty.

The economic cycle increasingly appears to be locked into a rhythm of low growth. Accordingly, the business cycle has been highly variable. Corporate caution has been evident, but so too has selective investment by businesses. This has fuelled demand in global real estate markets.

Critically this demand coincides with impoverished leasing market supply, at least for quality real estate, which has in turn served to drive rental growth. As the cycle moves forward it is this rental growth which appeals to global real estate investors, already attracted to the relative out-performance of real estate assets in a low interest rate, low yielding economic environment. In our view there is road to run in 2017.

COMPETING ON THE WORLD STAGE

+

As business disruption increases, so too does the mobility of occupiers

WRITTEN BY

Dr Lee Elliott,
Head of Commercial
Research,
Knight Frank

For the modern office occupier all the world's a stage. Three powerful and disruptive forces – slower economic growth, new technology, and the war for talent – are forcing occupiers to adjust or extend their footprint. This is creating robust demand across global real estate markets.

DISRUPTION = DEMAND

Corporate responses to disruption are set against a backdrop of low economic growth – one which many commentators regard as an entrenched reality if not a 'new normal'. The IMF, for example, recently issued a global economic outlook entitled 'Too slow for too long'. This is a neat, if worrisome, appraisal of the operating conditions facing global occupiers. On the one hand this sustained low growth trajectory serves to drag down corporate confidence and acts as a brake on business investment. Yet on the other hand anaemic growth has forced occupiers to adjust their business processes to protect margins and reduce operational costs.

The insatiable rise of technology is also at work. As well as emerging as a dominant global sector in its own right, technology has challenged the very rationale of traditional businesses. It has permitted the radical re-thinking of the why, how and where of work. Those who have embraced technology are gaining a competitive edge. For instance, 71% of respondents to a recent McKinsey Global Survey believed that enhanced digital capabilities increases profitability. In contrast, those who fail to grasp the significance of digital disruption face uncertain futures.

Nanjing Road,
Shanghai, China



Nanjing Road,
Shanghai, China



Berlin, Germany

Yet responding to this hi-tech challenge has brought exposure to a third disruptive force – the need to attract and retain talent in a global labour market. A recent survey found that 90% of C-suite level executives view recruiting and retaining technology talent as their top business challenge.

What a challenge it is. In the U.S.A., for example, the Council of Advisors on Science and Technology predicted a shortfall of one million technical professionals by 2020. Little wonder therefore that the concept of a 'war for talent' has gained increasing traction.

MOBILITY

The challenging realities of disruption are driving increased levels of occupier mobility as a new geography of occupancy emerges – one dominated by the Global Cities. The globalisation of occupier activity is strongly evidenced by levels of global Foreign Direct Investment (FDI) which have been on an upward trend since 2012. According to the OECD, global Foreign Direct Investment (FDI) flows were up 25% year-on-year in 2015 at some U.S.\$1.7 trillion. Not only did this constitute the highest volume of activity since the onset of the financial crisis in 2007 but, tellingly, both corporate and financial restructuring were cited by OECD as significant catalysts.

The notion that office occupiers are spatially fixed is being challenged daily. The fragmentation of business processes has led to the rapid rise of 'shoring', whereby functions have been relocated to locations that have clear labour or cost advantages. Bangalore, Shanghai, Warsaw, Bucharest and Manila have all been beneficiaries of this trend, but a range of new locations are emerging in Peru, Trinidad & Tobago, and Kenya.

Mobile occupiers also have an urban focus. Young talent is heavily concentrated in cities. San Francisco, Berlin, Austin, Tel Aviv, Seoul and London have all flourished due to the presence of a strong digital demographic. Occupiers, not just from the tech sector but from across all industry types, are following the talent and taking root in cities. This is forcing inter-city relocations. It is the reason that General Electric recently relocated from Fairfield, Connecticut, its home for 30 years, to Boston. GE recognised that its future success was dependent upon software innovation and that this placed priority on attracting city dwelling tech talent. The same talent driver underpinned Amazon's relocation of its U.K. HQ from Slough, in Berkshire, to high quality premises on the edge of the Shoreditch tech cluster in London.

Disruptive forces continue to build. The onset of Artificial Intelligence and robotics, for example, is starting to influence and shape new business processes. What is clear is that as these transformational forces take hold, new location and property choices will be required. Global Cities will continue to feature heavily, but as many age old businesses will testify, complacency never pays in a disruptive environment.

“THE NOTION THAT OFFICE OCCUPIERS ARE SPATIALLY FIXED IS BEING CHALLENGED DAILY”

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The cities of Sydney and Brisbane have experienced diverging fortunes over the past ten years as the timing and impact of economic drivers have been in play across these cities

SYDNEY AND BRISBANE - A TALE OF TWO CITIES

WRITTEN BY

Matt Whitby, Group Director, and Jennelle Wilson, Senior Director, Research & Consulting, Knight Frank Australia

The Sydney CBD at 5.1 million sq m is more than double the size of the Brisbane CBD (2.3 million sq m) and as both are surrounded on three sides by water, this has shaped development and also pushed demand to non-CBD and increasingly fringe urban regeneration sites. The Brisbane market has seen more decentralisation to immediately adjacent locations, whereas Sydney has many more suburban satellite markets of scale, which has pushed demand further afield. However, centralisation, driven by infrastructure investment, appears to be gaining traction in the Sydney CBD.

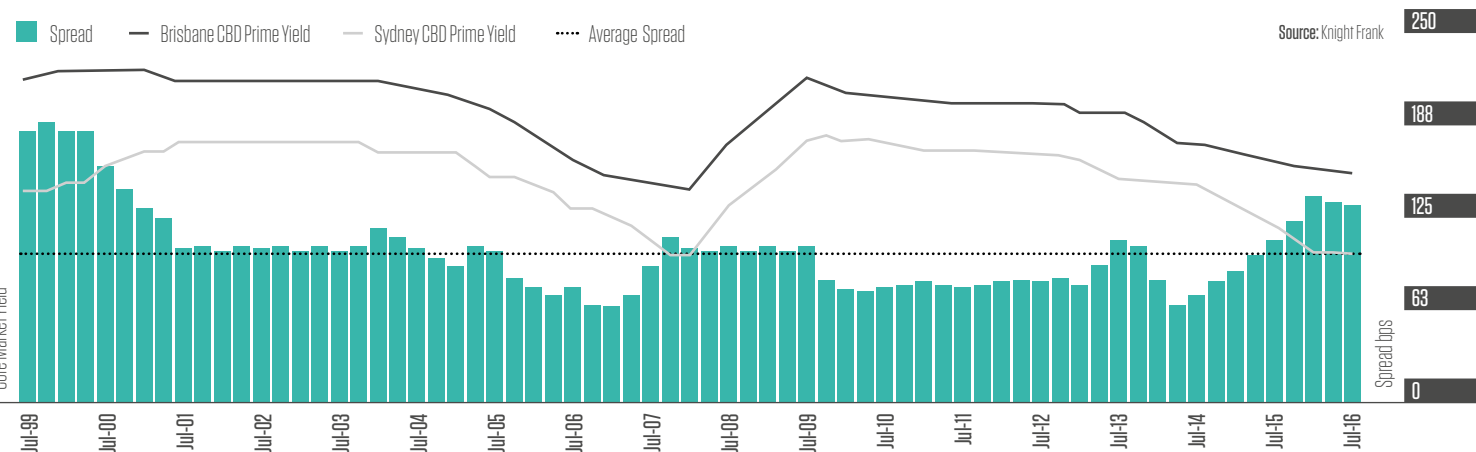
SHAPING THE MARKETS

Shaped by the underlying economic drivers, the two markets have achieved periods of strong demand, however at differing speeds and timing. While both cities felt the initial impact of the GFC, Sydney's exposure to the Finance & Insurance sector led to a sharp fall in occupied space during

late 2008 and into 2009. In contrast the Brisbane CBD, boosted by strong conditions in the resources sector, was achieving strong take-up defying the broader national conditions. In 2013, the combined impact of a sudden downsizing in the State Government headcount, vacating circa 70,000 sq m of stock, and the loss of profitability in the resource sector, led to a sharp fall in demand within the Brisbane CBD. Spurred by a resurgent NSW economy, driven by a huge transport infrastructure pipeline, the Sydney CBD market has been on an improving trend since late 2013, accelerating since then.

Considering the major office occupiers for the two cities, it is easy to see why this divergence has emerged. The industry structure is very different, with 30% of Sydney CBD white collar workers in the Finance & Insurance sector while in Brisbane this is only 13%. In contrast, in Brisbane 20% of workers are aligned with public administration compared to

PRIME CORE MARKET YIELDS & SPREAD SYDNEY CBD V BRISBANE CBD



Sydney, Australia



South Bank, Brisbane, Australia

only 6% in Sydney, and the mining, manufacturing, construction and utilities sector is double the size in Brisbane. Importantly for Sydney over the past two years, has been the larger exposure to the IT sector, with the technology and creative services sector being a large contributor to growth.

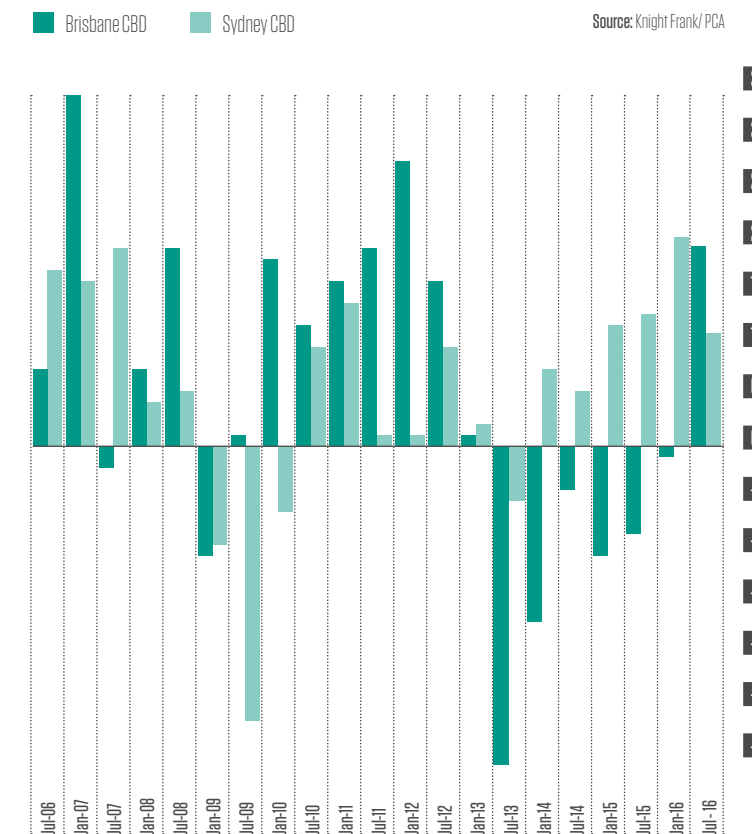
The resources sector has a multiplier effect on office demand and the 8% exposure in Brisbane translates to a greater contribution to the office market; however compared with Perth (with 20% aligned to the mining sector) the Brisbane economy remains relatively broad based, with education and tourism occupiers also prominent.

FOLLOW THE MONEY

Investment in Australia, particularly office and hotel buildings, has been growing strongly, supported by the relatively higher yields still to be found in the market. In the office market, during 2015 over \$9.12bn worth of property changed hands in Sydney, 57% of Australia's total turnover for the year. Investors, particularly foreign, were attracted to this global city with an improving tenant market and strong investment fundamentals.

In contrast Brisbane attracted 12% of total office investment at \$1.96bn. As yields for core assets continue to fall under the weight of money seeking a safe return and with the expectation of lower for longer interest rates, there is also a greater weight of funds seeking a relatively higher return. Increasing interest in markets

NET ABSORPTION SYDNEY CBD V BRISBANE CBD
NET ABSORPTION AS A % OF TOTAL STOCK, PER SIX MONTH PERIOD



Source: Knight Frank/ PCA

such as Brisbane is now in force, with indications that the negative influences in the tenant market have abated, and an expectation that the government sector is expanding once again.

The yield gap between Sydney and Brisbane is at the highest level in 15 years, and there is the potential for this to narrow in the near future, which is attracting value add buyers to the city and increasing the depth of offshore buyers.

THE FUTURE

The mining investment boom contribution to growth is reversing and there is a switch in drivers of the economy towards residential construction, transport infrastructure spending and the services sector including the technology and creative services industries. This is a clear positive for Sydney. However, Brisbane is a diversified economy and besides the large exposure to the business services sector, the government sector is on the cusp of an expansion, following sharp cuts in the preceding three years.

There continues to be divergence in the short term market conditions and rental growth performance in favour of Sydney, however we expect investment and occupier demand to pick up in Brisbane over the coming year, as investors begin to embrace more risk and seek higher relative returns.

HONG KONG

ASIA'S WORLD CITY

+
Expanding mainland Chinese firms transform market dynamics

WRITTEN BY

Pamela Tsui, Senior Manager, Research & Consultancy, Knight Frank Greater China

Mainland Chinese firms have shown renewed interest in Hong Kong's property market, from commercial buildings to development sites, in the past two years, causing quite a stir in the local market.

Mainland companies, especially financial firms, have become the major demand driver for prime offices in Central and Admiralty, Hong Kong's CBD. Thanks to the launch of bilateral financial agreements between Hong Kong and the mainland, such as the Shanghai-Hong Kong Stock Connect in 2014 and Mutual Fund Recognition in 2015, around 50% of new lettings in Central are to Mainland tenants. The influx of mainland tenants and their preference for Grade-A offices in the CBD has been the main contributor to soaring rents. In the past two years, Grade-A office rents in Central have

surged 20%, leading some firms to relocate to the eastern part of Hong Kong Island.

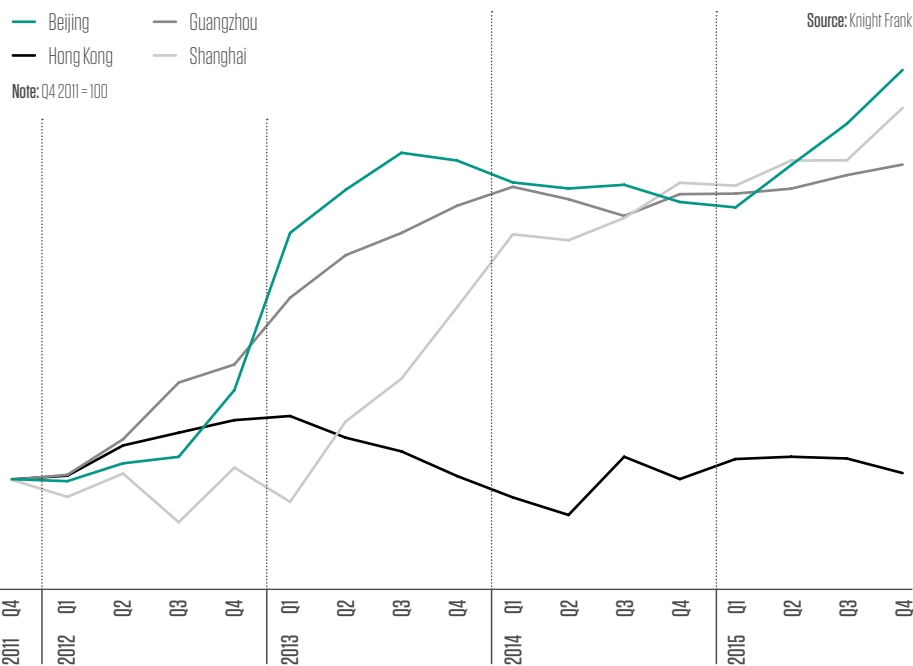
To hedge against the risk of further rental rises, many mainland companies are looking to purchase offices for their own use, including setting up regional headquarters. Despite low yields and high entry costs, Chinese firms are keen to establish their presence in the city. Hong Kong, as an international financial centre with an independent judiciary and financial system, is increasingly being used as the first stop for Chinese outbound capital and a springboard to world markets.

There has been a significant upward trend in mainland firms purchasing Hong Kong office buildings over the past few years. In the first six months of 2016, U.S.\$2.9bn worth of offices have been snapped up by mainland companies. Two Grade-A office buildings in Wanchai, an area adjacent to Admiralty, were sold recently – MassMutual Tower was acquired by Evergrande for U.S.\$1.6bn and Dah Sing Finance Centre was bought by China Everbright Group for U.S.\$1.28bn. In the past decade, mainland firms have acquired around U.S.\$6.4bn worth of office properties in Hong Kong, accounting for about 10% of the total office transaction volume in the city.

Mainland developers are also eyeing Hong Kong's development sites. Among these developers, China Overseas has been the most active, having bought four sites in Hong Kong since 2012. Last year, a record U.S.\$905.8m was spent on a residential plot in Kowloon by Shimao Property, one of the major land deals in that neighbourhood. So far in 2016, mainland developers have already snapped up over U.S.\$435.9m worth of land, or 25% of the total land transactions in Hong Kong.

Amid rising prices and yield compression in major gateway cities such as London and New York, China's outbound real estate investors have now shown at renewed interest in Hong Kong, the key gateway city closer to home.

LUXURY RESIDENTIAL LAND PRICE INDICES



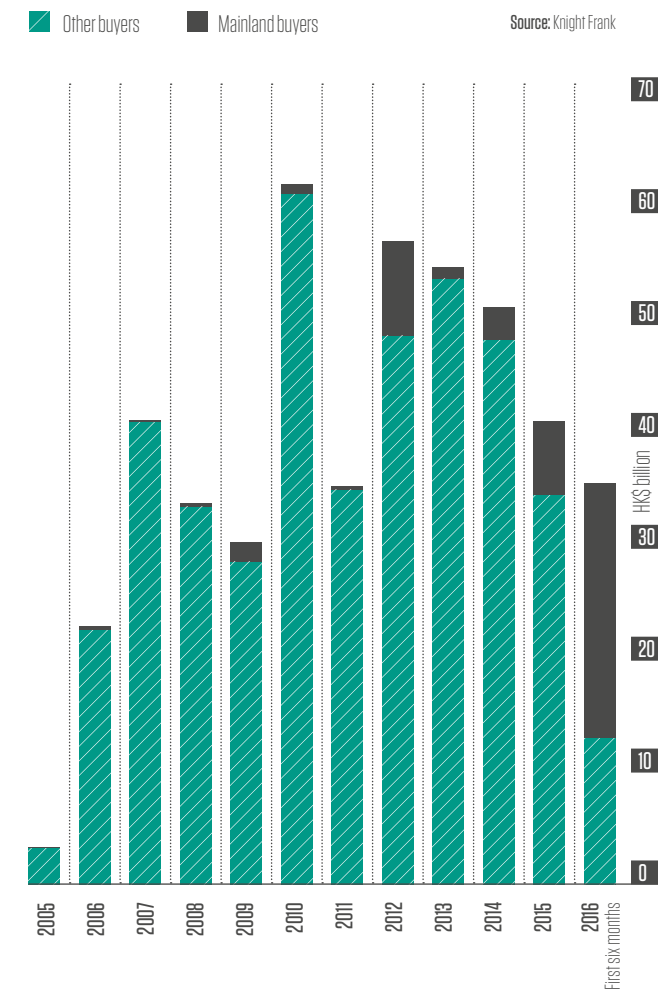
“IN THE PAST TWO YEARS, GRADE-A OFFICE RENTS IN CENTRAL HAVE SURGED 20%, LEADING SOME FIRMS TO RELOCATE TO THE EAST OF HONG KONG ISLAND”

Commercial District, Hong Kong



Developers are wary of the slower economic growth in the mainland and fierce domestic competition for land and funds. In comparison, Hong Kong does enjoy a relatively stable long-term outlook. Meanwhile, Hong Kong's land price growth has been flat with the market expecting further U.S. interest rate hikes and strong future supply. In fact, in some parts of Hong Kong, land prices are even cheaper than prices in some of China's major second tier cities. These have made Hong Kong's land become more attractive to Mainland developers. With further cross border integration, extensive transport links as well as the development of financial collaboration, such as the Shenzhen-Hong Kong Stock Connect and Hong Kong's role as a Renminbi off-shore clearing centre, we expect to see heightened interest from north of the border in Hong Kong's buildings and land in the next few years.

HONG KONG OFFICE SALES TRANSACTION VALUE



ACCESSIBILITY IN TOKYO



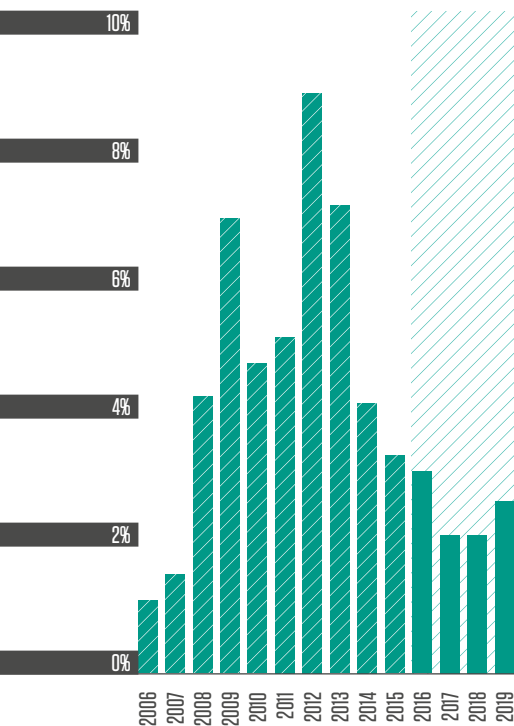
Bullet train in Japan

WRITTEN BY

Nicholas Holt,
Asia Pacific Head of Research,
Knight Frank

TOKYO FIVE WARDS GRADE A VACANCY RATE - FORECAST TO 2019

Source: Sumitomo Mitsui Trust Research Institute,
Knight Frank



+

Shinagawa to rival Tokyo's established prime office districts

Accessibility, in all its facets, is becoming an increasingly important consideration for office tenants in the Global Cities. Facing increasing congestion and longer commuting times, employees' needs to get into work easily, allied with businesses' needs for client proximity, continues to drive many occupiers towards office destinations where excellent accessibility is a "must".

Shinagawa railway station, in Minato ward, Tokyo, is a case in point. The ongoing and future renovation and regeneration of the area, is helping create one of the most accessible office sub-markets in Japan's capital city – attracting developers, investors and occupiers alike.

The station is one of only two in Tokyo that serves the Tokaido Shinkansen (bullet train), providing easy access to the provinces of Japan. The station also offers direct links to both of Tokyo's two main airports making it a convenient gateway to central Tokyo.

This accessibility has already led to a significant number of major tenants locating themselves in the area – with Microsoft, Mitsubishi Heavy Industries, Nikon and Deloitte Touche Tohmatsu all setting up large headquarters in the vicinity.

However, it is perhaps what is still to come which makes the area of so much interest. The Tokyo metropolitan government and East Japan Railway are putting significant effort into re-developing the whole area, with a major regeneration project covering 630 hectares around Shinagawa and Tamachi stations officially named an Urban Renewal Emergency Redevelopment Area. Plans include the redevelopment of a 15-hectare area of the former Shinagawa Depot Railway Yard – the most significant area of undeveloped land in central Tokyo, which will include office, hotels, residential and retail, supported by a new metro station set to open by 2020. This is all in anticipation of the opening of the linear Chuo Shinkansen maglev (magnetic levitation) railway, which will link Tokyo and Nagoya (the nation's third largest city) in just 40 minutes when open in 2027. Rents in central Tokyo have seen some of the most significant growth of any Global City over the last five years, with over 50% uplift. Grade-A office rents in Shinagawa currently sit at approximately 60-70% of those in Marunouchi, the heart of Tokyo's CBD. While the Tokyo office market is toward the upper stages of the rental cycle, we expect this gap to start to close as the Shinagawa Station area becomes a true gateway to Japan.

FRANKFURT: GERMANY'S SKYSCRAPER CITY

WRITTEN BY

Vivienne Bolla,
Senior Analyst,
Knight Frank

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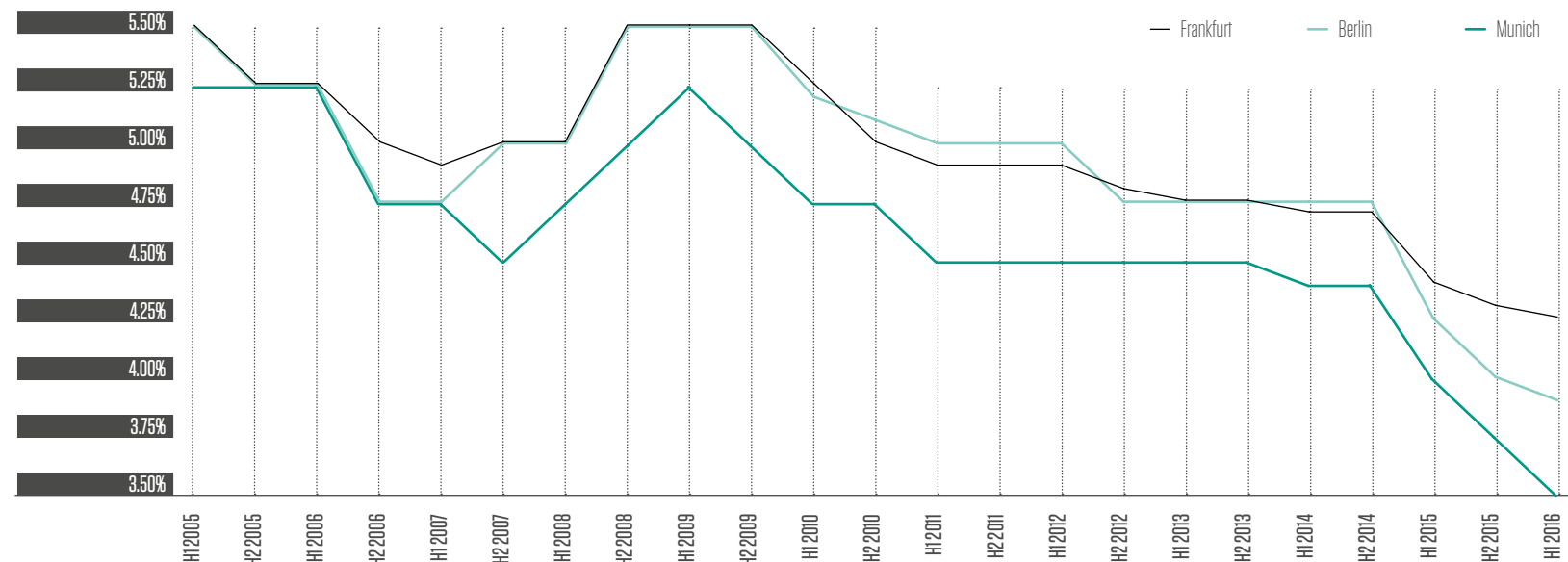
Following a period of strong yield compression and rising volumes, how will investor appetite change?



Goetheplatz, Frankfurt, Germany

Source: Knight Frank

OFFICE YIELDS (%)



With Germany's most unique skyline, Frankfurt boasts an impressive tower landscape. As a leading financial centre in continental Europe, the city is host to more than 230 banking institutions, including the European Central Bank, Deutsche Bank, Commerzbank and Deka Bank.

Germany's robust economic growth and political stability have provided a strong foundation for capital flows into commercial real estate. Investment is primarily focused on the "Big Five" cities – Munich, Berlin, Hamburg, Frankfurt and Düsseldorf. As Germany's main financial centre, Frankfurt is a particularly attractive destination for investment capital. Although German funds are very active in the market, the city has also drawn a growing volume of cross-border capital in recent years. Institutional investors from the U.S. and pension funds from South Korea have been the primary source of demand for Frankfurt's landmark buildings, while U.K. equity funds and French fund managers have also featured prominently in recent times.

Frankfurt was the fourth most active city investment market in Europe in 2015, behind London, Paris and Berlin. Commercial transactions soared as nearly U.S.\$7.7bn was invested in commercial property in 2015. Despite a restricted availability of investment stock, Frankfurt office volumes were the highest of the Big Five cities. This was boosted by several large-scale transactions including NorthStar's acquisition of Trianon for U.S.\$603.7 million, which was one of the largest single-asset deals ever recorded in Germany.

New benchmarks for the current cycle have been witnessed, with prime yields in Frankfurt hardening by 45 bps over the last year to a record low of 4.25%. Yields in Berlin and Munich have also compressed to record lows of 3.90% and 3.50% respectively. Historically, it has been unusual for Frankfurt's prime office yields to be highest of the Big Five markets. This is due to concerns among some investors over Frankfurt's occupier market.

With financial services companies undergoing consolidation, Frankfurt's dependence on demand from this sector has led to occupier market uncertainty. That said, some investors may focus on the relatively attractive level of Frankfurt's yields compared with other German cities. Overall, low cost of debt and the favourable returns on property should underpin investor demand for Frankfurt's commercial property market.

DUBLIN: TECH, TALENT AND TAX

+

As the capital city of Europe's fastest growing economy, Dublin has confirmed its position as a global hot spot for international occupiers and investors alike

WRITTEN BY

John Ring,
Investment Analyst,
Knight Frank Ireland

Accounting for 40% of Ireland's GDP, Dublin is the engine driving Ireland towards becoming the fastest growing economy in Europe for a third year in a row in 2016. The city's success can be attributed to the three T's; namely Tech, Talent and Tax. The tech industry now accounts for the largest share of office take-up, with companies such as Google, Facebook and Twitter locating their European Headquarters in Dublin, earning the city the title of 'Silicon Docks'. While the tech industry is the chief engine of growth, Dublin has emerged as an international hub for a broad range of sectors including aircraft leasing, financial services and media. With 40% of the population under 29 years old, Dublin also offers access to a young, vibrant and well-educated pool of talent. Lastly, the corporation of tax of 12.5% is low by international standards and acts strong pull factor for publically listed companies who have a fiduciary responsibility to minimise taxes.

Q1 2016 office take-up was up 62% on the same period last year, indicating that 2016 levels could even surpass those

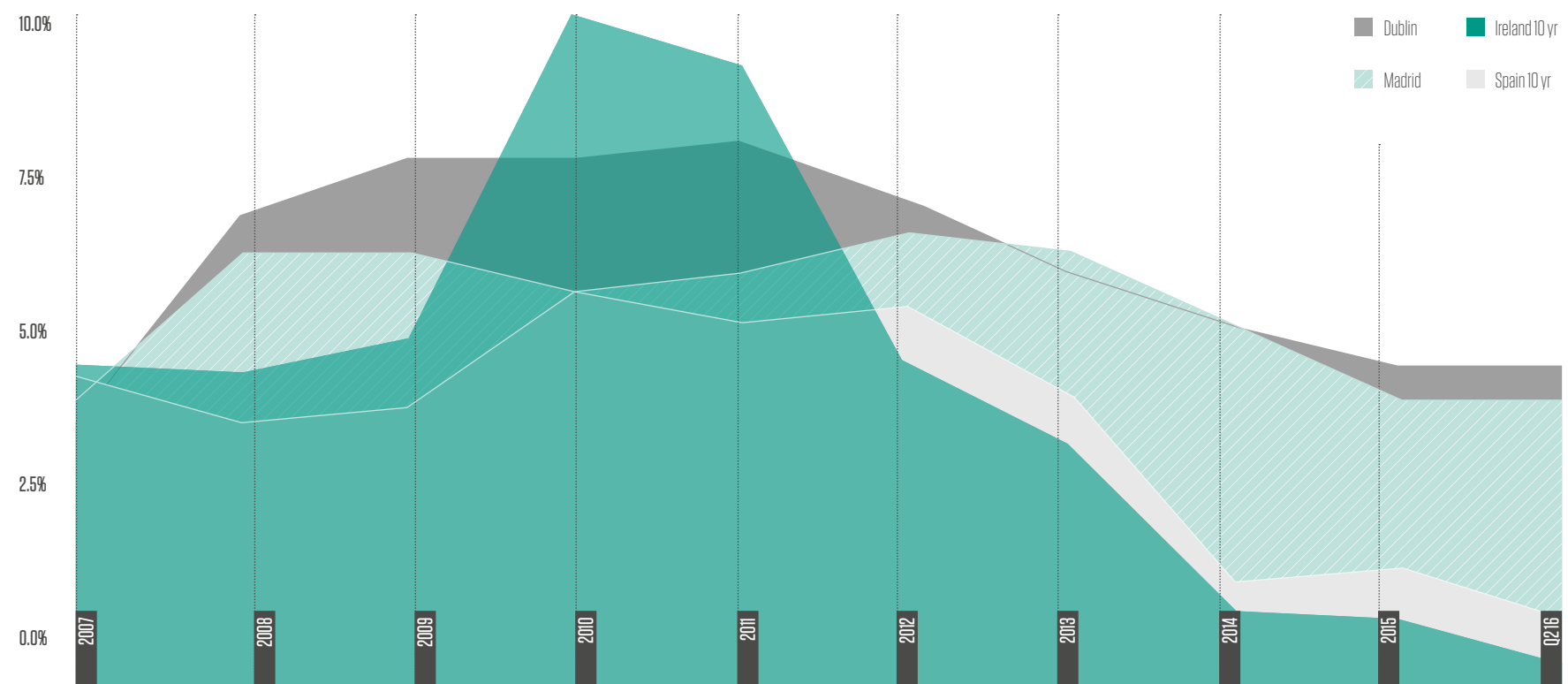
IFSC, Dublin, Ireland



achieved 2015, which was the second strongest year on record. The strong occupier demand combined with low availability of space has seen prime rents rise from a trough of U.S.\$36.25 per sq ft in 2011 to currently stand at U.S.\$61 per sq ft; although they are still below their pre-crisis high. The pace of rental inflation is finally showing signs of easing as the first delivery of new office development in over half a decade begins to come on stream.

The robust recovery in occupier market fundamentals has drawn unprecedented levels of international investment flows to Dublin. United States private equity funds were the first to spot the opportunity that the Dublin market represented, with Blackstone, Lone Star and Kennedy Wilson each deploying significant levels of capital. With the market now considerably de-risked, pension funds, primarily from Europe and Canada, and sovereign wealth funds from Asia, are accounting for the next wave of capital in the expectation that Dublin will continue to deliver superior risk-adjusted returns over the coming years.

DUBLIN AND MADRID PRIME OFFICE YIELDS VS BOND YIELDS



Source: Knight Frank, Thomson Reuters

MADRID LEADS SPAIN'S RECOVERY

+

The immediate future presents both challenges and opportunities, but the outlook for Madrid is positive

WRITTEN BY

Ignacio Buendia,
Research Manager,
Knight Frank Spain

Madrid's prime office yield is expected to harden for at least the next two years. The office market (occupier take-up, investment volumes and prices) performed extremely well throughout 2015 and exceeded all expectations. However, in the final months of 2015 and H1 2016, the market recovery slowed. Caution has been the watchword that best describes investor sentiment over the past few months, reasserting the view that the recovery is still at an early stage.

Madrid, Spain



Uncertainty has been fuelled by the absence of a stable government, as well as the difficulty obtaining planning permits in major cities. Other macro-economic challenges have encouraged caution among investors, such as the commodities crisis in emerging markets, the volatility of the stock markets, and the uncertainty in the European Union following Brexit.

These negative factors have made it difficult to judge the market outlook. However, one thing is certain, the correction in the Spanish real estate market over the course of the crisis was so significant that there is a widespread view that the sector's recovery will follow soon, it is just a question of when. The Madrid office market, however, is already experiencing this recovery.

It is telling that the number of employees per square metre in Madrid is one of the highest compared to other global capitals such as London, Paris, New York and Hong Kong, as this demonstrates that there is pent-up demand, which will go on to drive take-up over the coming quarters. Madrid prime rents are also expected to increase by at least 16% over the next three years.

The second half of 2016 is expected to see a return to institutional normality with a new Spanish government, and any political changes will be relatively benign in order to ensure economic stability and an extended recovery cycle. The current outlook is therefore clearly one of growth: disposable income is on the up, unemployment is down, financing costs are lower and property returns are higher than alternative investments.

The Madrid prime office market is currently serving as a safe haven for international capital. This will continue to be the case, as long as there continues to be uncertainty in other investment destinations outside of Spain. Also, our forecast of rental growth to come suggests that prime yields in the best locations will continue to harden, reaching 3.8% by the end of 2017. Until then, the foreseeable and on-going decrease in available space in consolidated secondary and out-of-town areas and rental increases, will guarantee opportunities for investors of all risk profiles.

THREE THEMES FOR REAL ESTATE INVESTORS

WRITTEN BY

Mark Clacy-Jones,
Head of Data and Analytics,
Knight Frank

+

Low yields across real estate and fixed income are leading investors to balance and broaden their views of appropriate investment assets

Every time the global economy is on the verge of returning to a normal interest rate environment it is buffeted by an unforeseen shock. The latest chain of events in the EU will keep interest rates lower for longer and leave real estate investors grappling with innovative ways to build successful portfolios.

01 PRICING & PORTFOLIO REBALANCING

Commercial real estate has benefited from major capital inflows in an environment of low interest rates and loose monetary policy across many major global economies. Any interest rate increases in advanced economies (other than the U.S.) are on the back burner, following the U.K. referendum vote to leave the EU. It appears we have moved from the "lower for longer" environment into the "even lower for even longer" environment, with ten year bond yields negative in Japan, Germany, Switzerland, and under 1% in the U.K., France and Hong Kong.

Intermittent volatility in equity markets has bolstered real estate's favoured status, as investors search for assets that deliver yield with some degree of certainty over the long-term. Consequently, real estate yields have fallen leaving pricing at historically high levels, but with sensible risk premia still in place (see graph). Despite real estate in many large global markets being perceived as late cycle, there are a number of factors which make it unlikely that we will see yields rising dramatically.

Going forward, a muted supply pipeline and low vacancy rates in many cities is likely to keep property yields low. There has been far less reliance on debt finance in the current cycle when compared with the previous one. With the major pricing correction of 2007-2009 still in the minds of many investors these contradictory pricing signals are leading owners and managers to consider the balance of their portfolios, while maintaining a solid asset allocation to real estate in the region of 7%-10%. This portfolio rebalancing exercise should keep liquidity in the market in the short-term, as investors trade higher risk assets for lower risk, long income assets including healthcare and food stores.

Global investment strategies can also benefit from volatile currency markets, provided transactions are well timed. For example, the recent fall in the value of sterling following the EU referendum will be a factor influencing the timing of investment decisions into the U.K., particularly from capital sources outside Europe.

02 REAL ESTATE TO REAL ASSETS

Property has always vied with many other asset classes in competition for capital, but over the last ten years definitions have shifted. Property has grown in scale from a small number of core sectors to cover a wide range of asset types under the real estate banner. Now real estate is often viewed by investors as an asset type that sits within real assets alongside infrastructure, which incorporates toll roads and bridges, airports, railway lines, power stations, telecom networks, and a myriad of other physical assets.

Infrastructure benefits from many of the same characteristics that make property attractive to investors. It is scalable, and provides a steady income, which is perfect for asset-liability matching. It is local but portfolios can be diversified globally, and it exists in a physical sense. Due to the low yield investment environment, allocations to infrastructure are rising.

A BlackRock survey of EMEA institutional clients in early 2016 showed infrastructure was the asset class investors were most likely to increase exposure to, followed by property. In July 2016, Brookfield raised \$14bn for the largest infrastructure fund ever, proving there is huge appetite for the asset class.

The cross-fertilisation benefits between infrastructure and property are very real, with infrastructure in many ways acting as the lines that join up the real estate dots, and neither can excel without the other. This can create a virtuous circle of investment and return as the built environment benefits. Global infrastructure investment should be a driver of real estate investment going forward.

03 BUILDINGS WITH BEDS

The days of building balanced portfolios around the tripartite of retail, office and industrial assets are over. Residential investment is moving into the mainstream in countries where it has not been in the past, through growth of the private rented sector. Additionally, understanding a multitude of temporary and permanent accommodation options is becoming a necessity for large investors, as both demographics and globalisation support the demand for hotels, student housing, senior living and healthcare.

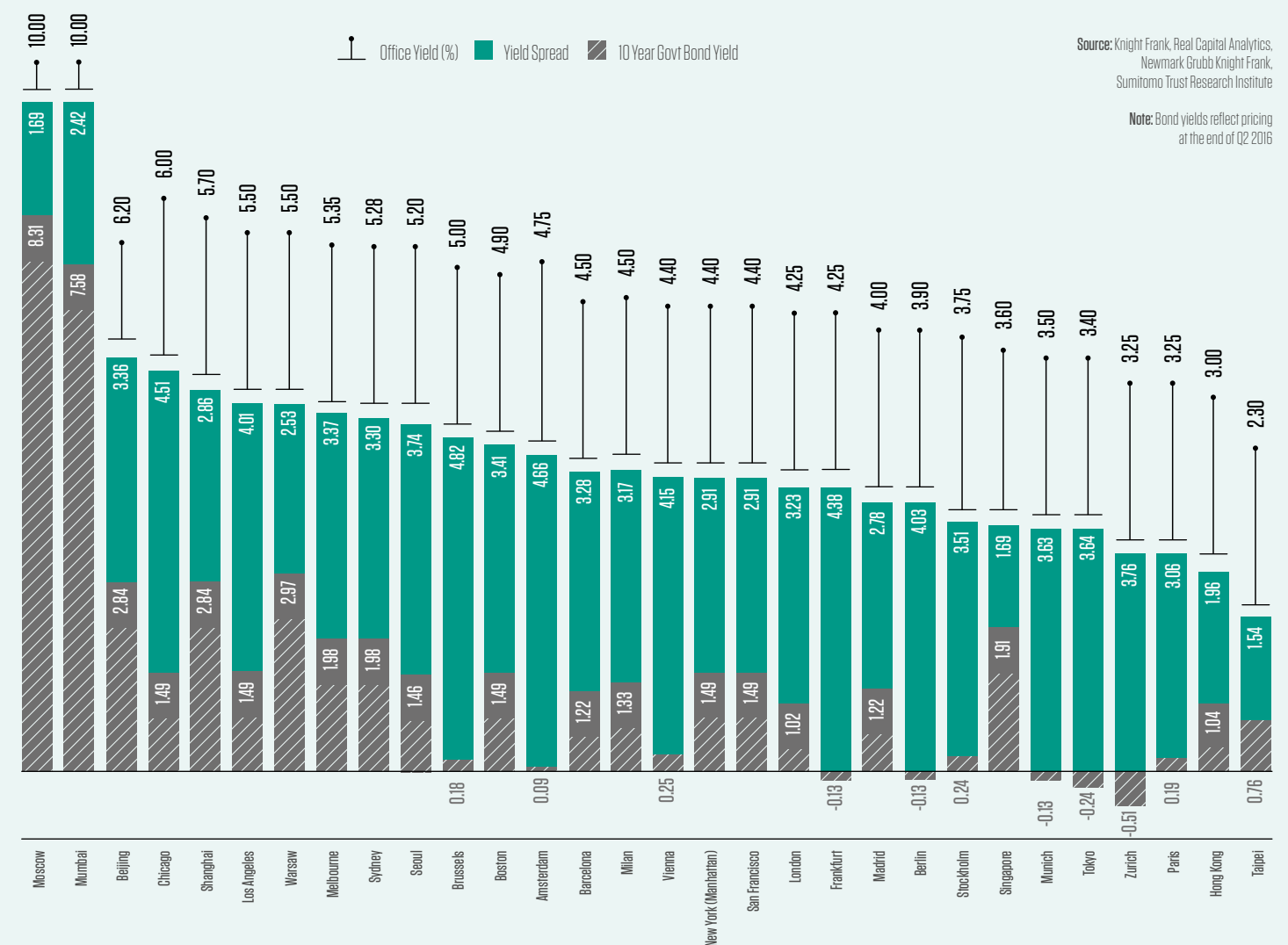
Demographics favour investment in housing for those at the beginning and end of their adult life. University draws many people to new cities, increasingly in new countries, for the



Suvarnabhumi
Airport, Bangkok,
Thailand

"THE CROSS-FERTILISATION BENEFITS BETWEEN INFRASTRUCTURE AND PROPERTY ARE VERY REAL"

GLOBAL OFFICE MARKET MONITOR - Q2 2016



Source: Knight Frank, Real Capital Analytics,
Newmark Grubb Knight Frank,
Sumitomo Trust Research Institute

Note: Bond yields reflect pricing
at the end of Q2 2016

first time in their lives and the trend of increased enrolment into tertiary education doesn't seem to be abating. A lack of appropriate product in many cities has drawn interest from developers and investors in recent years, creating a new institutional property asset class that is large enough to feature in balanced and specialist portfolios alike. This phenomenon is particularly obvious in Europe, where housing stock is older and typically built for single family use rather than modern apartment blocks which are a better fit for student purpose, but is also seen on the other side of the globe in Australia and many cities in between.

At the other end of the demographic spectrum, senior living and care home assets are experiencing similar supply and demand dynamics, as large ageing populations in the largest economies in Europe, North America and Asia-Pacific have the financial means to demand better accommodation and care as they grow older. UN world population projections predict a 12% increase in the number of people over 75 between 2015 and 2020, and another 18% growth by 2025.

Real estate needs to meet the demands of the growing number of people traveling for business and pleasure with a range of hotel product to suit all budgets (from new hostels in Europe to six star resorts in the Middle East) and duration (from basic single night business hotels to longer stay apart-hotels). IATA forecasts suggest global passenger numbers will increase by around 5% p.a. for the next five years, and the hotel sector in gateway cities should continue to benefit from this increase in travellers.

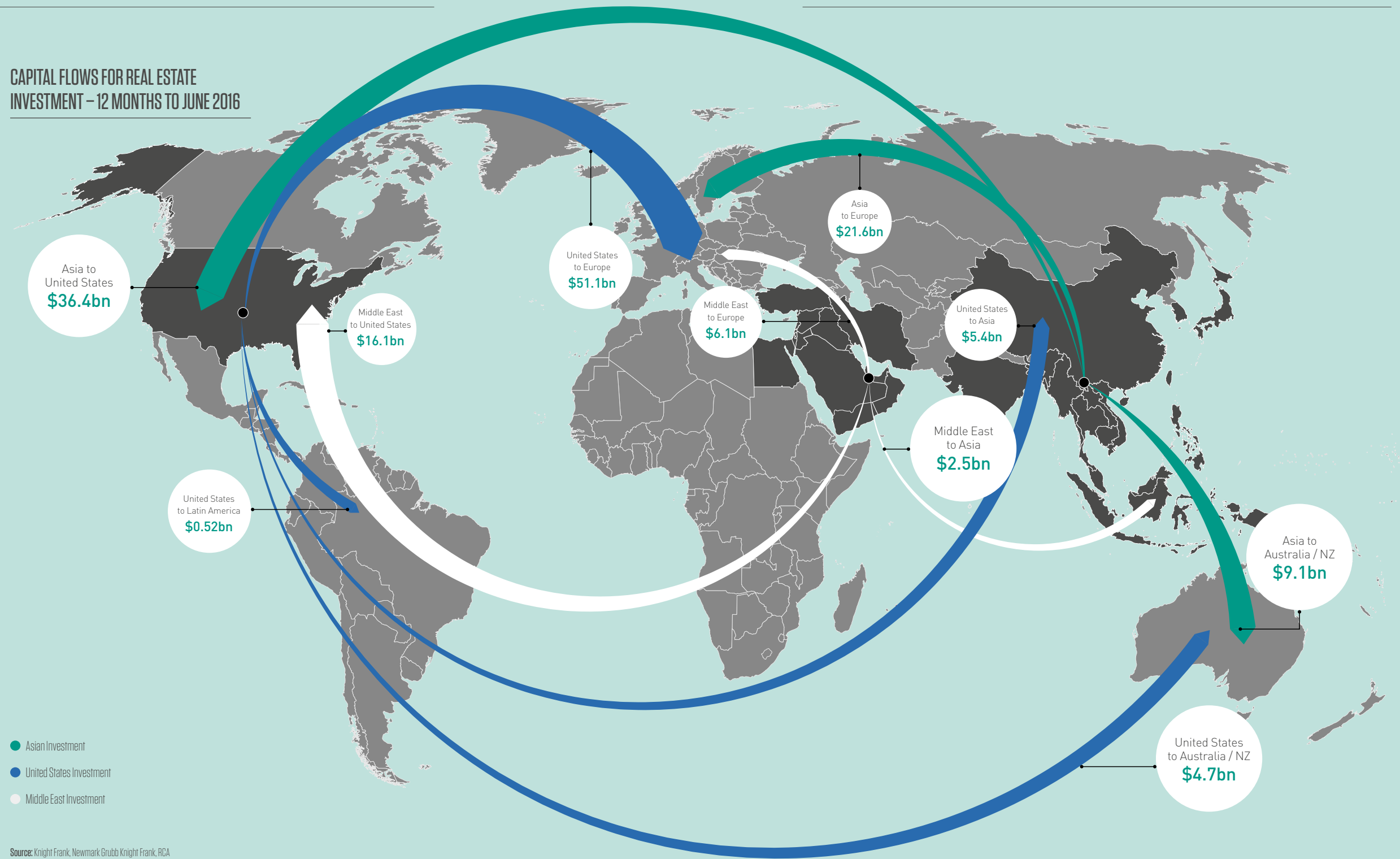
+

Compared to 2009, cross-border commercial real estate investment has increased more than five-fold to U.S.\$320 billion in the 12 months to June 2016. Negative interest rates, volatile currencies, and portfolio diversification mean that this upwards trend will continue

OVER THERE.

CROSS-BORDER REAL ESTATE INVESTMENT

CAPITAL FLOWS FOR REAL ESTATE INVESTMENT – 12 MONTHS TO JUNE 2016



THE CITIES THAT DRAW THE MOST OVERSEAS CAPITAL

Sales to foreign investors - U.S.\$ bn 12 months to June 2016

Source: Knight Frank, Newmark Grubb Knight Frank, RCA



A THOUSAND FUTURES FOR PARIS



La Défense,
Paris, France

WRITTEN BY

Cyril Robert,
Head of Research,
Knight Frank France

+

Innovative thinking on redeveloping sites offers new opportunities for real estate investors

Imitation is safe. Basic logic suggests following in the footsteps of others reduces risk, based on the philosophy: "It worked in the past, so it will work in the future!" Imitation is thus a natural instinct, but it can become the dominant mindset, and lead to future trends being overlooked.

This is true everywhere and the economy is no exception. Investment in office space in the Paris region provides a good example over recent years. More and more investors entered the market and increased their exposure, drawn by its exceptional level of safety as well as its profitability. In six years, investment volumes have nearly quadrupled, reaching a historic high in 2015.

This success grew around a generalised strategy of closely focussing on high quality buildings, with secure tenants, in good locations. In 2015, 81% of the capital invested in the Paris region targeted Core or Core Plus assets.

"It worked in the past, so it will work in the future!"

Certainly, but there are only so many of these prime, Core assets. Drawing on the experience of others is wise up to a point. However, limiting yourself to imitation in today's market is to pass up new opportunities elsewhere; and we can already see that danger today in Paris.

First, there is the risk of the investment market drying up due to a lack of suitable assets, which partly explains the sharp drop in investment volume in the beginning of 2016 (down 58% in the first quarter). Also, a relentless competition among buyers has pushed prime yields in Core locations to their present historic lows. Moreover, the market has for too long refused to face the big question: how can we restore profitability to the real estate business model, given the accelerated obsolescence of tertiary buildings? New construction techniques, constantly changing patterns of occupier demand, and shifting balances between how much of each building use is required, complicate the task.

However, a new blueprint for the city in the future is emerging, but rather than in market statistics, you can feel its ascendance in the success of the "Reinventing Paris" competition. The Paris City Hall offered to sell 23 sites to groups involving architects, investors and developers, landscape architects, sociologists and experts from various disciplines. What was the key to

success? Not the offer price, but innovation, proposing new uses, new management schemes, and phased redevelopment. The need for an ultra-dense city, which has almost no more land available, has created a huge opportunity for investors. In the end, 650 teams from around the world submitted proposals.

The City Hall selected the winners earlier this year, and what came out of the competition? A lot of new thinking, in terms of mutability and mixing of uses, techniques and building materials, density and funding. The sale also netted a lot of money for the city, which will pocket U.S.\$620 million for these sites, some particularly improbable, and will generate U.S.\$1.4bn of private investment.

Projects that particularly drew attention included, "A Thousand Trees", designed by architects Manal Rachdi and Sou Fujimoto, and presented by La Compagnie de Phalsbourg and Ogic. Located above the ring road in a polluted and noisy site, "A Thousand Trees" offers a sylvan horizontal landscape open to the public where housing, offices, hotels, services and shops and a small high-end food court will be developed. This unique project is an antithesis of towers, with a bias towards density and an urban mix perfectly assumed by Manal Rachdi: "today, to be innovative and green, you have to be dense and therefore offer a mixed program"

The Morland building, located in the heart of the Paris Prefecture with its 470,200 sq ft and 16 floors, also relies on this principle of diversity. The developer, Emerige, and the architect, David Chipperfield, even dedicated some space to urban agriculture, with 32,300 sq ft of gardening on rooftops, producing fruits and vegetables that can be eaten on the spot.

Further on, in the new district of the Batignolles, hops growing on the facade of the Stream Building will be harvested in the fall. By that time, it will have finished protecting the building from the heat, and will be used for beer. Eurosic, Hines and the architect Philippe Chiambaretta, pushed their thinking with the Stream Building very far. Real estate is conceived as a living organism, a constantly changing metabolism. A workplace, or a place to live, blurring codes and habits, with about a hundred of mini-lofts combining accommodation and work areas and the principle of highly flexible leases. A flexibility which is even found in the organisation of the building, whose wooden structure must facilitate the mutation of uses over time. The goal? Delaying obsolescence for as long as possible.

A rather crazy bet, but a tempting one. It hasn't worked yet, but it will work one day!

"IN THE NEW DISTRICT OF THE BATIGNOLLES, HOPS GROWING ON THE FACADE OF THE STREAM BUILDING WILL BE HARVESTED IN THE FALL, AND USED FOR BEER"

INVENTION & REINVENTION

52 SAN FRANCISCO TECH

The leading light in the post-GFC digital boom, San Francisco is increasingly the HQ city of choice for the technology sector

56 LABS IN THE CITY

Boston has leveraged its success in academia to establish a centre of excellence for bio-tech and life science

61 BERLIN IS BUZZING

Once blighted by high unemployment and slow growth, Germany's capital is now Europe's coolest tech hub

71 INDUSTRY 4.0 IN BANGKOK

With unemployment painfully low, Thailand's firms are planning a future of robot-dominated smart factories

*Chong Nonsi BTS station,
Bangkok, Thailand*

WRITTEN BY

Robert Bach,
Director of Research - Americas,
Newmark Grubb Knight Frank

+

The global economy constantly evolves as each new generation adds a layer of new knowledge, skills and wealth to the legacy of previous generations

This evolution has accelerated with every technological innovation, from the printing press through the industrial revolution to the latest new mobile app, to the point where, today, change seems instantaneous. Nowhere is this process more visible than in the world's major cities, where growing tech companies are transforming old industrial districts into cutting-edge mixed-use neighborhoods, attracting highly educated millennials to build their careers and their lives. Cities have always risen and fallen in stature, and the same goes for neighborhoods within cities. Some of the cities featured in these pages were struggling with seemingly intractable problems not very long ago. Their current success underlines the possibilities for cities and neighborhoods that are not as far along in the process.

SAN FRANCISCO TECH GROWING HQ CITY

WRITTEN BY

Andrea Arata,
San Francisco
Director of Research,
Newmark Cornish & Carey

A San Francisco address gives technology companies an edge in recruiting, and as a result the city has had a rebirth as a headquarters city

While San Francisco is the corporate home for a number of notable non-technology tenants, including Wells Fargo, Pacific Gas and Electric and Gap, Inc., the city's reputation for hosting corporate headquarters lost some of its luster when both Bank of America and Chevron moved their headquarters out of San Francisco in 1998 and 2001, respectively. However, as the premier breeding ground for the technology industry, San Francisco has lately seen an improvement in its standing as a leading headquarters city.

Today, technology companies occupying at least 10,000 sq ft account for 30% of the office inventory, equal to more than 23 million sq ft. Unlike the tenants of the dot-com era, a great number of these tenants are publicly listed, have strong credit, or have been in business for over a decade: Salesforce, Twitter, Fitbit and Square have expanded their corporate headquarters here to nearly 4 million sq ft combined. Lucasfilm relocated its headquarters here after the dot com bubble burst, and Google and LinkedIn have each leased over 500,000 sq ft in San Francisco, outside of their corporate headquarters in other cities. Younger, private technology companies founded since the recession, including Uber, Stripe and Pinterest, dominate the South of Market district (SoMa). Together, these three companies have leased 1.7 million sq ft in SoMa in current and build-to-suit space—making up more than 10% of the current submarket in size.

Continued venture capital interest remains strong, with nearly \$5bn invested into Bay Area companies in the first quarter of 2016, or more than 40% of all investments nationwide. Yet there are signs that the market is changing: Venture funding toward the end of 2015 and beginning of 2016 dropped significantly over the previous two years (while still remaining much higher than the ten-year average). As funding has slowed, several technology companies are pausing or pulling



back on their space requirements, creating a modest but noticeable increase in sublease space. Moreover, 4.3 million sq ft of new space is slated for delivery by the end of 2017, 44% of which was pre-leased as of spring 2016. While these indicators have raised red flags regarding the future health of this technology-heavy market, other indicators temper this concern. So far, there has not been a drop in tenant demand, which was stronger in the first few months of 2016 than in the first few months of 2015. The technology tenant base has a solid track

“SALESFORCE, TWITTER, FITBIT AND SQUARE HAVE EXPANDED THEIR CORPORATE HEADQUARTERS HERE TO NEARLY FOUR MILLION SQ FT COMBINED”

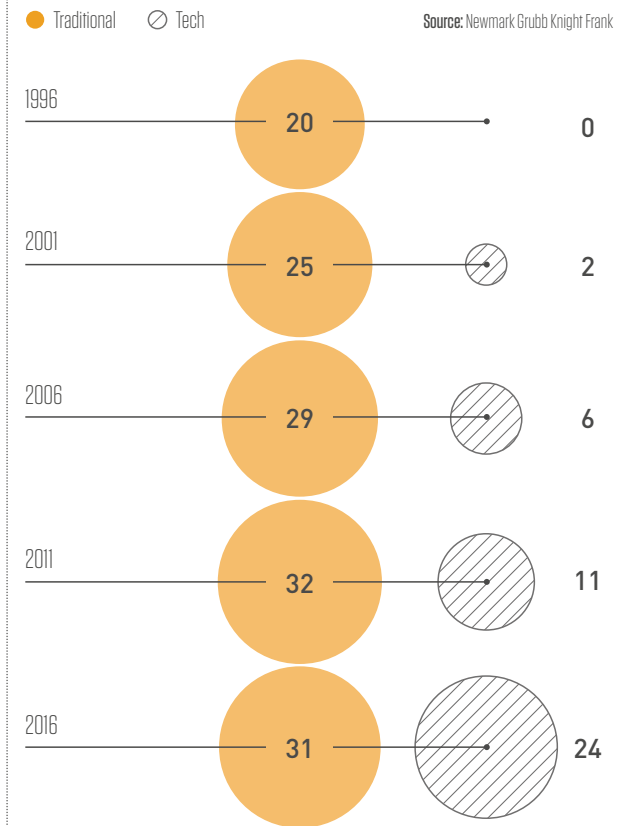
record of performance, and over 75% of the space leased to technology tenants occupying 10,000 sq ft or more is leased to companies that have been in business for at least eight years. Additionally, future development is capped at just 875,000 sq ft per year per San Francisco's Office Development Annual Limit Program, which by keeping inventory low will help shield the market from any future significant drops in rental rates.

Despite any future uncertainty, the San Francisco market still reverberates from the strong technology tenant growth of the last few years: Market-wide vacancy remained below 5% at the beginning of 2016, while rents continue to climb—albeit at a much tempered pace—and sales prices per square foot are reaching record highs. Annual Class A asking rents in SoMa, the most desirable location for tech tenants, were nearly \$79.00/SF by the end of first-quarter 2016. Class A rents market-wide have doubled since 2010 to more than \$71.00/SF at the end of the quarter, inching closer and closer to the \$71.83 peak reached during the dot-com cycle—a record achieved at that time after rents climbed 45% in only a year.

While it's difficult at this juncture to predict where the market is heading, one fact is clear: San Francisco will remain an important headquarters city and home to a growing number of successful tech companies.

SoMa, San Francisco, U.S.

COMPANIES HEADQUARTERED IN SAN FRANCISCO



CURRENT SAN FRANCISCO FOOTPRINT

6,174,400

TECH

6,994,400

TRADITIONAL

13,168,800

TOTAL

THE COMEBACK KID

SEATTLE



+

Seattle offers a prime example of how a city develops an ecosystem of technology talent

WRITTEN BY

Robert Bach,
Director of Research - Americas,
Newmark Grubb Knight Frank

Seattle, Washington

SEATTLE

58% of people aged over 25 in the City of Seattle have a degree

500 Seattle has nearly 500 houseboats, more than anywhere else in the U.S.

23m people travel by ferry in Washington State every year

With **2.5 coffee shops per 1,000 residents** Seattle is America's most caffeinated city

Source: Visit Seattle, U.S. Census Bureau, Washington State Department of Transportation, Washington Technology Industry Association

The process arguably began in 1971, when hometown aerospace giant Boeing lost a government contract to build a supersonic transport plane that would compete with Europe's Concorde. The loss triggered rounds of layoffs, sharply reducing Boeing's local payroll. However, the company's misfortune planted the seeds for Seattle's renaissance, as many laid-off engineers and technicians took their skills to other local companies or started their own enterprises.

The event that cemented Seattle's future as a technology hub occurred in 1979, when Microsoft founder Bill Gates moved his fledgling company from Albuquerque, New Mexico, where an early partner was located, to his hometown of Seattle. Tired of commuting, Gates thought it would be easier to recruit there.

The technology ecosystem in Seattle today is broad and deep, with three major supports: Microsoft; e-commerce giant Amazon, established in 1994; and the University of Washington, which has a top-ranked computer science program. The state of Washington is home to about 90,000 software engineers, and their number is growing. The city's lead in cloud computing, data storage and e-commerce has

encouraged Google, Facebook, Oracle and other Silicon Valley companies to open local offices, in part because recruiting in Seattle is easier—although the competition for talent there is heated.

To help fill the talent gap, local companies are importing educated millennials from outside the region, boosting Seattle's population growth to about twice the U.S. average. Washington is the largest importer of technical talent among U.S. states, with candidates drawn by outdoor activities and a lower cost of living than San Francisco and Silicon Valley.

Microsoft and Amazon represent bookends in the history of technology corporate real estate. Microsoft occupies a suburban campus encompassing approximately 8 million sq ft, while Amazon occupies a multi-tower urban campus near downtown Seattle that could eventually expand to 10 million sq ft.

The region's hottest tech submarket, South Lake Union, is home to Amazon and Google. Adjacent submarkets including Pioneer Square and the West Edge/Dexter Corridor are attracting smaller firms as Seattle's tech ecosystem ripples outward.

AMSTERDAM:

A SMART CITY

WRITTEN BY

Matthew Colbourne,
Research Associate,
Knight Frank The Netherlands

Amsterdam is increasingly prominent in rankings of European tech locations, and it was rated as one of the five most innovative cities in the world by a 2015 CITIE survey. The city's Deputy Mayor Kajsa Ollongren has stated an ambition to secure Amsterdam a place alongside London and Berlin as one of Europe's premier tech hubs. A healthy start-up ecosystem is being fostered by private-public partnerships such as the Amsterdam Smart City, StartupAmsterdam and StartupDelta initiatives, and by events including May 2016's Startup Fest Europe, where keynote speakers included Apple's Tim Cook.

Amsterdam's start-up community is supported by co-working spaces such as B. Amsterdam, WeWork and Spaces, while prominent tech accelerators include Startupbootcamp and Rockstart. Additionally, a new tech space called TQ is due to be launched in 2016 by the Dutch tech news publisher The Next Web, working in collaboration with Google.

A notable success story to have emerged from the city's start-up scene is Ayden, which handles online payments for clients including Facebook, Netflix, Spotify, Uber and Airbnb. Ayden is the Netherlands' first "unicorn" – a start-up valued at over U.S.\$1bn. Other well-known tech

+

Amsterdam is one of Europe's fastest growing technology hubs

47% rise in foreign investment projects in 2015 in The Netherlands

Amsterdam's Schiphol airport handled

58,000,000

passengers in 2015



90% of Dutch people speak English

64% of internet connections in the Netherlands have average speeds over 10 Mb/s



Sources: ACI, Akamai, EY, and Eurobarometer

companies based in Amsterdam include the travel website Booking.com, file transfer service WeTransfer and GPS navigation company TomTom.

Amsterdam has also attracted some of the world's most innovative companies, with firms such as Uber, Netflix and Tesla choosing it as the location for their European headquarters. For companies locating in the Netherlands, its attractions include a favourable fiscal climate, a well-educated English-speaking labour force and some of the fastest internet speeds in the world.

Amsterdam is consistently ranked as one of the most liveable cities in Europe. It is host to a large international community and offers a rich cultural lifestyle suited to young tech professionals. Its geographical location and transport links provide easy access to the rest of Europe, with Schiphol Airport within a short drive of anywhere in the city.

Amsterdam's tech scene still has some way to go before it reaches the scale of London and Berlin. However, the relatively small size of the Dutch tech market works in its favour by fostering an international outlook – from their inception, start-ups look beyond national borders towards global markets. Amsterdam is a forward-thinking, open and progressive city which has much to offer to both home grown start-ups and international tech giants.



Amsterdam, The Netherlands

LABS IN THE CITY

BOSTON'S SCIENTIFIC CLUSTER

+ Boston remains at the forefront of innovation and has retained its position as the nation's leading Biotech and Life Sciences hub

WRITTEN BY

Jonathan Sullivan,
Research Manager – Boston,
Newmark Grubb Knight Frank

The metro area's favorable business climate continues to lure established biotech, pharmaceutical and medical technology companies, while also nurturing the development of start-ups and early stage firms. Access to elite academic and research institutions, government grants and tax incentives, and top-notch talent have been integral in the success story of Boston's life sciences industry.

Grant funding through the National Institutes of Health in Massachusetts totaled more than \$2.5bn in 2015, the highest since 2012 and behind only California. More recently, the governor's office earmarked \$63.9m for the upcoming fiscal year for the Massachusetts Life Sciences Center to further support the industry's development. Life Sciences companies based in Boston continue to dominate public-sector fundraising as well. Following a banner year in 2015, which saw 11 Massachusetts-based biotechs raise \$870m, the first five months of 2016 have seen five companies raise \$316m. This accounts for 36% of the total funds raised by U.S.-based life sciences companies so far this year.

Cambridge-based Intellia Therapeutics had the industry's second largest IPO in 2016 through May, having raised \$108m. Earlier in the year, the company leased 65,000 sq ft of lab space in Mid Cambridge. This represents one of the many examples of the life sciences sector's robust growth in Boston, which has driven the overall lab vacancy rate in Cambridge to 4.6%, the lowest level since NGKF began tracking the lab space market in 2001. The industry's resounding growth has pushed lab rents in Cambridge to an unprecedented level. These circumstances have resulted in more office space renovations catering to life sciences tenants, in addition to the out-migration of tenants into the Cambridge periphery and the CBD's Seaport District, where GE will soon be moving its global headquarters.

Dwindling lab space availability has quickly become the biggest obstacle facing most space users in Boston. Rising real estate costs are also entering the picture, but most of the industry has realized that having access to top-grade lab and research facilities, as well as attracting and retaining talent, are essential in this fast-moving sector. The aforementioned factors will also continue to act as growth catalysts and propel the development of Boston's life sciences cluster well into the future.



The Old State House, Boston, U.S.

MASSACHUSETTS

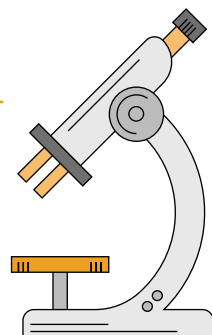
36% of IPOs by Life Sciences & Pharma firms accounted for by Massachusetts (YTD May 2016)

36% of total funds also raised by Life Sciences & Pharma firms

\$316.2m on par with 2015's banner year, which saw 11 Massachusetts' biotechs go public

2 of the top 5

Life Sciences & Pharma IPOs (YTD 2016)



SILICON HILLS:

AUSTIN'S TECH CLUSTER

+ Austin's "melting pot" culture, that welcomes a broad range of ideas, not only brings people together but also creates jobs

WRITTEN BY

David Wegman,
Director of Research
and Marketing,
Newmark Grubb
Knight Frank

The city of Austin has long been a favorite destination for work, play and education. This dynamic city offers an enterprise-friendly environment, entrepreneurial focus and a unique culture that combines tradition with creative possibility and innovation. Over time, this blend has transformed a local economy once dominated by government into a diversified, \$115bn economy with strong ties to the technology sector. Employment in government has shrunk from 29% in 1990 to 18% in 2015.

Today, with patents, venture capital and leading edge ideas driving innovation, 5,485 high-tech employers representing nearly 132,300 jobs have put down roots in Austin. These companies range from tech titans, including Apple, Google, Facebook, Oracle, Cisco Systems, Dell and Hewlett-Packard, to seed-stage and start-up ventures. The impending launch of the Dell Medical School at The University of Texas at Austin will strengthen the city's position as a national destination for life sciences and biotech innovation.

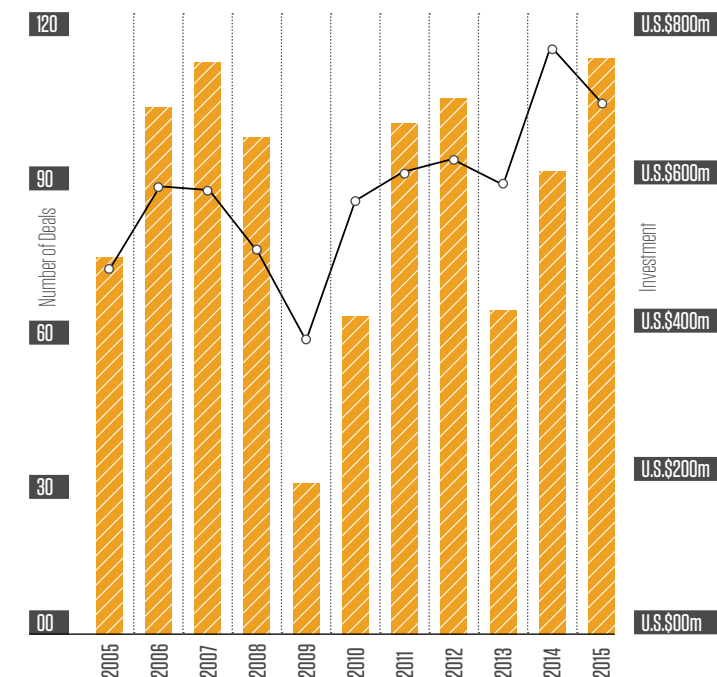
Over the last ten years, employment growth has averaged 3.2% annually, compared with 0.6% at the national level. This rapid economic expansion has convinced many graduates from the University of Texas and other nearby schools to stay put, while attracting enough in-migration to increase the overall population by 150 people a day.

Consequently, many corporations, particularly those in high-tech industries, are eyeing Austin for access to a young and educated workforce. Nearly 75% of the 2015 and year-to-date 2016 corporate relocations and expansions involve technology companies. Since 2005, Austin has received nearly half of all venture capital dollars invested in the state of Texas, eclipsing the much larger Dallas and Houston areas. These successes have earned Austin the title of Silicon Hills, the Silicon Valley of the South.

Austin's creative workforce, advanced manufacturing capabilities and fast-growing population are influencing the design and construction of local real estate. This means the development of more workspaces and co-working environments as well as more high-density multihousing. Currently, there are 44 multihousing projects underway, representing more than 11,000 units. The industrial and office sectors have a combined 4.4 million sq ft in the construction pipeline, with the delivery of most of that space expected in 2017 and 2018. Across all real estate sectors, demand is high, vacancies are low and rents are at or near record highs.

VENTURE CAPITAL INVESTMENT IN AUSTIN AREA COMPANIES

Sources: Newmark Grubb Knight Frank, Austin Chamber of Commerce



Austin, U.S.



LOS ANGELES

THE RISE OF SILICON BEACH

WRITTEN BY

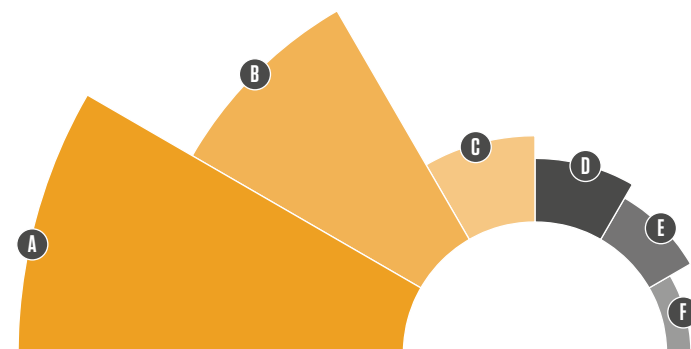
Michael Rudis,
Senior Research Analyst,
Los Angeles,
Newmark Grubb Knight Frank

LOS ANGELES SCIENTIFIC, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM) EMPLOYMENT BY OCCUPATION

A Computer and Mathematical Occupations 44.2%	D Management Occupations (STEM only) 7.3%
B Architecture and Engineering Occupations 30.3%	E Sales Occupations (STEM only) 5.5%
C Life, Physical and Social Science Occupations (STEM only) 9.9%	F Postsecondary Education Occupations (STEM only) 2.8%

+

From offices to warehouses to downtown's revitalization, tech's impact is being felt across the real estate market



Source: U.S. Bureau of Labor Statistics
Los Angeles-Long Beach-Glendale, May 2015

Los Angeles has long been a world-class center for business, culture, travel and entertainment. However, the city has also matured into one of the nation's leading high technology centers with a key part of it comprising the "Tech Coast," a moniker given to the Southern California coastal region from Santa Barbara to San Diego, where there is a high concentration of technology-based enterprises. The Bureau of Labor Statistics estimates there are now more than 221,500 STEM (Science, Technology, Engineering and Mathematics) employees in Los Angeles County. Several industries have even formed clusters, most notably the software and electronics companies based in "Silicon Beach."

PUSHING THE BOUNDARIES

As the real estate market and business landscape evolve, so does the definition of Silicon Beach, which once only referred to the confines of Santa Monica and Venice. The technology and creative companies that define Silicon Beach are now finding they have more options than ever if they want to stay in an amenity-rich market surrounded by like-minded companies and talent. As tenants' leases expire, Santa Monica landlords will find themselves in greater competition with other submarkets like Playa Vista, Marina Del Rey, Culver City and even El Segundo and Downtown Los Angeles—especially for budget-conscious tenants.

GROWING TECH SCENE FOR REAL ESTATE

The Los Angeles tech scene is poised to gain global prominence in the coming years. In 2015, the Los Angeles/Orange County region captured a greater share of total

United States venture investment than it had in the last 20 years. In raw dollars, 2015 also saw the greatest amount of venture money invested in the region since 2000—fuel for high-growth technology companies to expand. At the same time, venture investment remains strong in Northern California. This is a good sign for Los Angeles, as historically, Silicon Valley companies like Facebook, Google and Yahoo! have opened locations in Los Angeles to access the highly educated workforce graduating from prominent schools such as the University of California Los Angeles (UCLA), University of Southern California, California Institute of Technology and Pepperdine University, among others.

IMPACT BEYOND THE OFFICE

Technology's impact on the Los Angeles real estate market and economy extends far beyond the polished concrete floors and exposed ductwork of the office space housing tech firms. With increasing numbers of consumers turning to e-commerce, more consumer goods can be found in warehouses than in retail stores. According to unadjusted estimates from the U.S. Census Bureau, e-commerce sales remained strong in 2015, as web sales totaled \$343.0bn for the year, a 14.9% increase over 2014's \$298.6bn. Total retail sales grew by only 1.6% over the same time period, to \$4.7 trillion from \$4.6 trillion, when factoring out food service sales and sales at restaurants and bars.

As the demand for warehouse space in the tightest industrial market in the country increases, warehouses are being built with larger footprints and higher clearance heights than ever before. In fact, at more than 500,000 sq ft, the average size of a new warehouse constructed in the Inland Empire, which houses many of the regional fulfillment centers serving Los Angeles, over the last five years is over 80% larger compared with five years ago. Many industrial occupiers are now conducting multiple operations under one roof, such as brick and mortar store inventory replenishment and online sales fulfillment.

LOS ANGELES IS EVOLVING

Los Angeles is continually evolving as a megapolis. The region's growing population and traffic congestion is causing planning departments to work enthusiastically with developers to construct high-density, transit-oriented developments in an effort to transform growing communities into more efficient and engaging 24/7 "live, work, play" areas.

Residents are also seeing the resurgence of urban cores such as Downtown Los Angeles, which is experiencing a major boom in residential construction and population growth. Downtown's revitalization also includes the restoration and repositioning of historic buildings and even neighborhoods through initiatives like "Bringing Back Broadway," a ten-year plan to revitalize the historic Broadway corridor through economic development projects, business assistance and infrastructure improvements. 2016 even saw a train carry passengers from Downtown Los Angeles to Santa Monica along once-abandoned tracks for the first time in nearly 60 years—one of many public transportation investments intended to better connect Los Angeles' many vibrant cultural and business centers.

Los Angeles, U.S.



THE RISE OF TORONTO THE GOOD

+ A new wave of development, mostly pre-let, demonstrates Toronto's continued growth as a global business hub

WRITTEN BY

Sam Meer,
Senior Vice President,
Newmark Knight Frank Devencore

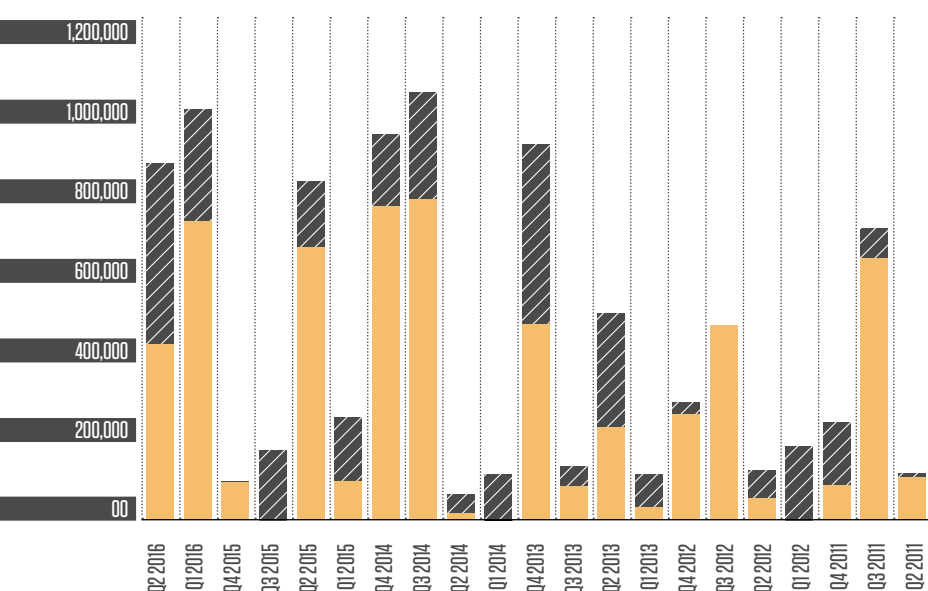


Toronto, Canada

NEW SUPPLY TREND, GREATER TORONTO

■ Total Leased Area (sq. ft.) ■ Direct Available Area (sq. ft.)

Source: Newmark Knight Frank Devencore



The city of Toronto is continuing its largest and most rapid expansion in over 175 years. Toronto has the most new skyscrapers under construction among the 26 major global cities included in PwC's Cities of Opportunity report. With lower energy prices, the weaker Canadian dollar and improving prospects for manufacturing, transportation, warehousing and other sectors in eastern Canada, investors and developers are still looking at new opportunities in fast-growing Toronto.

Toronto is one of North America's major economic centers and the hub of the Canadian financial industry with six million regional inhabitants, 40% of the nation's business headquarters, nearly a fifth of Canada's GDP and 45% of Ontario's GDP. Toronto is currently ranked fourth in the world in terms of global competitiveness and as the 10th most influential financial center.

Nevertheless, many observers are wondering how much longer Toronto's real estate market can continue to grow. The economy and real estate market have only grown or held stable in the seven years since the Great Recession and the 13 years leading up to it. Many suspect a downturn is coming, especially in the housing markets, where affordability is a primary concern. The office and industrial sectors continue to expand, with investors and developers becoming more selective in choosing opportunities.

With a 7.3% office vacancy rate, among the lowest in Canada, infill developments and redevelopments remain high on the agenda, given Toronto's commitment to intensifying its urban core. Rents and cap rates are generally flat, and the outlook for the office market is positive, with 3.6 million sq ft of new stock, most of which is pre-leased, expected to come on stream in the next two to three years.

The rapid development of real estate in Toronto has been a direct result of business growth and a stable economic climate. Several conditions are driving attractive market returns, including competitive interest rates, strong public universities turning out a highly educated workforce, and the lowest taxes on new business investment and lowest debt-to-GDP ratios in the G-7.

The city also has a secret weapon. Toronto's workforce is the most diverse in the country and arguably on the continent in terms of ethnic origin, educational background and skillset, with over 50% of the population being foreign-born. Toronto has shown that a diverse workforce that is effectively incorporated into the cultural fabric can be tremendously powerful.

BERLIN IS BUZZING

+

A quarter of a century after the fall of the wall, Berlin has undergone stellar transformation

WRITTEN BY

Vivienne Bolla,
Senior Analyst,
Knight Frank Germany

Berlin's remarkable regeneration into one of Europe's most vibrant cities has placed it on everyone's radar. Affordable rents, a bustling nightlife, an evolving food scene, and an explosive start-up sector are just some of the city's defining elements.

There was very little investment in Berlin's built environment during the 1990s, due to the huge costs of reunification. Instead the city was left with a glut of vacant commercial space as state and municipal bureaucracies rationalised. To add to the woes, up until the mid-2000s, Berlin struggled with its resumed role as Germany's capital. By 2005, the unemployment rate had reached 19%. However, over the past decade, Berlin has made a complete turnaround. Its economy has evolved to become one of the best performing in the country, underpinned by the boom in tourism and the services sector.

Recent years have seen an explosion in the start-up scene, with over 40,000 companies founded in Berlin each year. Reasonable overheads, low-cost living and incentives offered for start-up businesses, have attracted entrepreneurs and young creatives to the city, leading to the emergence of a vibrant entrepreneurial culture. The cost of living in Berlin is one of the lowest in Germany, with rental costs between 15% to 40% less than in Frankfurt, Hamburg

and Munich. Compared to London, the difference is also significant, with Berlin's cost of living nearly a third less.

Berlin's international appeal is evident in its demographic trends. Over 174,000 people moved to the city in 2014, and a notable 55% were young foreigners; a considerable increase over the last ten years. Its open-minded culture and laidback vibe has been a magnet with artists and creatives, who have played a role in the city's regeneration. Some districts have been more exposed to regeneration than others over the past decade, with Mitte and Kreuzberg the first to take on the creative mantle, followed more recently by Friedrichshain, a 'working-class' district. However, even Berlin's coolest districts are not immune with Pankow and Kreuzberg becoming more gentrified. Isolated areas have been revitalised, modern and quirky buildings have been cropping up in the cityscape, while older abandoned factories have been restored and converted into entertainment venues.

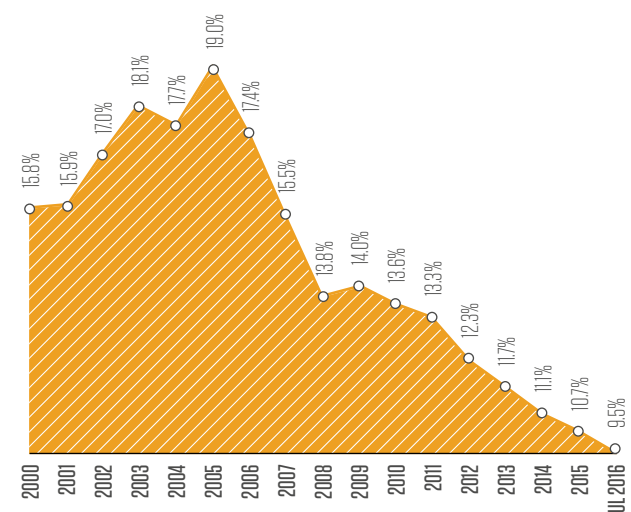
A once struggling city is now transformed into a hub of culture, technology and entrepreneurial spirit.

Berlin, Germany



UNEMPLOYMENT RATE IN BERLIN (% AVG. FOR YEAR)

Source: Bundesagentur für Arbeit (Federal Employment Office), 2016



WRITTEN BY

Sangeeta Sharma Dutta,
Assistant Vice President, Research,
Knight Frank India



RMZ Infinity Complex,
Bengaluru, India

+ Bengaluru has attracted global enterprises on the back of world-class technology, as well as several Indian unicorn start-ups

While Silicon Valley continued to dominate the tech sphere, the pursuit of innovation has spread across the world, with global enterprises seeking new talent pools beyond established hubs. Bengaluru, touted to be the IT and start-up capital of the country, has emerged as one of the most attractive destinations for multinational companies looking to set up innovation centers and tap technology talent. It also has a thriving tech start-up scene.

Over the past few years, many Fortune-500 giants have set up camp in Bengaluru, all of whom have either headquartered their India operations in the city or set up captive technology centres. Of late, global 'unicorns' such as Uber have also set up base in Bengaluru.

Among the companies setting up innovation centres in Bengaluru are Airbus BizLab, which intends to bring together start-ups and Airbus internal entrepreneurs; and Visa, whose new office in Bengaluru aims to house 1,000 developers, accelerating development of next-generation payment solutions. Meanwhile, U.S.-based home improvement and appliances retailer Lowe's launched an innovation lab in Bengaluru for start-ups selected for its planned

16-week accelerator programme, that aims to speed up the deployment of innovative tech-based solutions at its stores across the world. One of the key factors behind the city gaining acceptance as a destination for new technology is its supportive and nurturing eco-system, as demonstrated by the large number of start-ups in the city. It is estimated that around \$9bn was invested in start-ups in India in 2015.

Several home-grown firms with headquarters in Bengaluru, such as Flipkart, InMobi and Mu Sigma, have made it to the billion-dollar 'unicorn' club. The range of engineering talent and links with the Silicon Valley has contributed to these start-up success stories.

Notably, the city has a number of top-class global research institutes, such as Indian Institute of Science, as well as many state-owned research organisations, thus adding the talent pool necessary for innovation centres to thrive.

Despite the slow pace of infrastructure development, Bengaluru has tremendous potential to host future innovation centres, as evinced by the strong eco-system that enabled the city to surpass several global cities in order to emerge as a preferred innovation hub.

TECH MUSHROOMS IN SEOUL

+ Seoul boasts not one but several technology districts, supported by robust infrastructure and government policy

WRITTEN BY

Yoona Choi,
Country Manager
and Partner,
Knight Frank
South Korea



Gangnam, Seoul,
South Korea

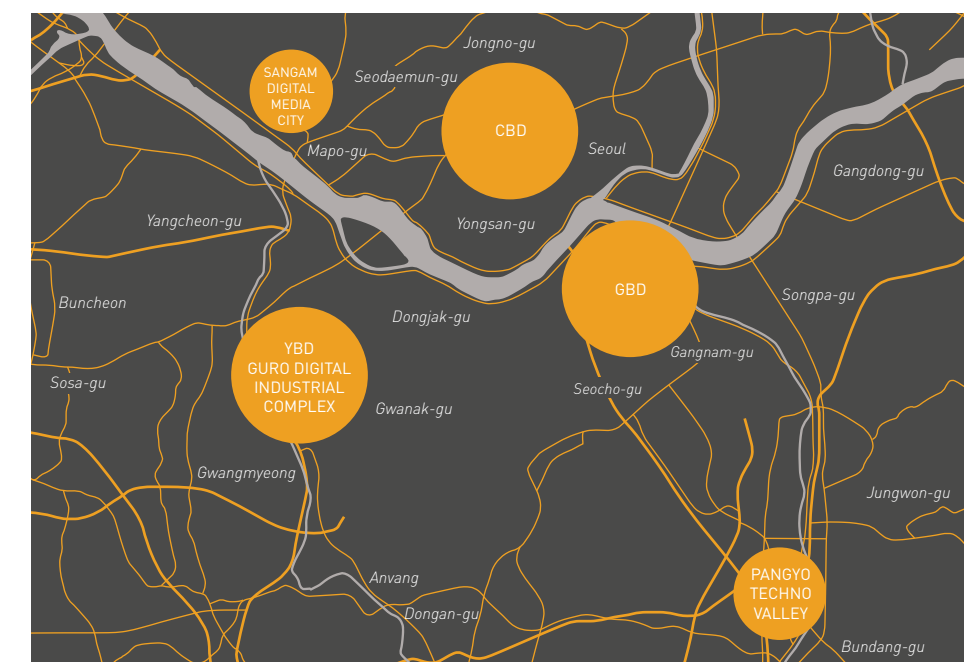
Ranked by Bloomberg as the most innovative country in 2015, South Korea is synonymous with technology. It topped the ranking in the categories of research and development as well as, unsurprisingly, patent creation. Underpinning this is physical infrastructure development steered by the government.

The congregation of information technology (IT) enterprises and start-ups along Teheran-ro – today's Gangnam Business District (GBD) – in the 1990s culminated in the area being designated Seoul Venture Valley in 2000. Around the same time saw the establishment of Seoul Digital Industrial Complex in Guro – dubbed the Silicon Valley of Korea – and Anyang Venture Valley, both of which feature a high concentration of IT firms. These have inspired the creation of Gwangyo Techno Valley, Pangyo Techno Valley – also dubbed the Silicon Valley of Korea – and Sangam Digital Media City more recently. In addition to IT, the newer industrial clusters also target biotechnology, cultural technology and nanotechnology, as well as the convergence of these technologies.

The success of these research and innovation hubs can be largely attributed to the incentives granted by the government. While prime net headline rents average around U.S.\$30 per sq m per month in Seoul's Central Business District (CBD), just 7.5 km away in the Digital Media City, rents for businesses can be as low as U.S.\$3. Land for office development is also offered at a highly competitive price, not to mention significant tax breaks. Besides financial enticement, the government developed transport infrastructure that has shortened the commute between GBD and Pangyo Techno Valley by 75% to a mere 15 minutes for instance. On top of physical infrastructure, these hubs host support centres that provide mentoring programmes to help commercialise new products and connect start-ups with venture capital.

Lured by these benefits, companies have moved out of CBD and GBD to these emerging business districts. Competition for tenants will become even stiffer when construction is completed in the up and coming Magok Industrial Complex, Dongtan Techno Valley and the second Pangyo Techno Valley. However, these industrial clusters that incubate start-ups and foster innovation are essential to the future vitality of the Korean economy, especially when nearby China is moving up the value chain rapidly. As these start-ups mature, they will also drive leasing demand in the prime office markets of CBD, GBD and Yeouido Business District (YBD).

SEOUL'S TECH DISTRICTS



BENGALURU'S UNICORN CLUB

Victoria Terminus Station,
Mumbai, India

+

With unprecedented investment committed to Mumbai's infrastructure development, this city's growth shows no sign of slowing down

WRITTEN BY

Vivek Rathi,
Vice President Research,
Knight Frank India

MUMBAI'S GROWTH SUSTAINING INFRASTRUCTURE

Analysis of the Indian residential market in the period after the global financial crisis reveals that 263,000 housing units were sold in the country in 2015, which is 27% less than the 2010 figure. Of the top eight cities, Mumbai saw its share of housing sales shrink from 30% in 2010 to 24% in 2015. Similarly, based on the office space demand the city saw its share dwindle from 26% to 18% during this period.

Considering that Delhi, Bengaluru, Hyderabad, Chennai and Pune also vie for a share in corporate investment, Mumbai's loss is others' gain. Even Delhi and Bengaluru, the major cities, fared better than Mumbai. Between 2010 and 2015, Bengaluru witnessed its share of housing sales climb steadily from 8% to 20% on the back of the office demand share remaining steady at 27%.

The chief factors driving these cities are infrastructure development and a steady supply of relatively inexpensive real estate – the key enablers of business. In contrast, Mumbai is known for being the country's most expensive property market, and high real estate costs are stifling businesses and individuals alike. With a space-starved peninsular geography, increased infrastructure development appears the best solution to augment the supply of affordable real estate and sustain the city's growth.

Accordingly, unprecedented investment is now committed for Mumbai's infrastructure, with a target to complete the projects within an ambitious time frame.

The upcoming U.S.\$2.6bn Mumbai Trans Harbour Link (MTHL) is a 22-km, six-lane sea bridge connecting Mumbai to its satellite city, Navi Mumbai. This project will link a residential market costing U.S.\$443 per sq ft to another at U.S.\$52 per sq ft. Similarly, the upcoming 36 km Coastal Road, running along the city's coastline, will be a first of its kind controlled access highway providing high speed connectivity between the north-south corridors of the city. The residential price gradient along the Coastal Road is U.S.\$192 per sq ft to U.S.\$1,107 per sq ft. Both projects are scheduled to be completed by 2019.

In the case of the metro rail network, the city has seen the implementation of a single, 11.40-km east-west corridor, which took around seven years to build. By contrast, two north-south corridors, spanning a 35-km route, have been envisaged with a target completion date of 2019. The residential price gradient along this metro corridor ranges from U.S.\$177 per sq ft to U.S.\$266 per sq ft. Implementing these beacon projects on time would cover some lost ground, paving the way for Mumbai's return to the numero uno position.

SHANGHAI

WRITTEN BY

Regina Yang,
Head of Research and Consultancy,
Knight Frank Shanghai

TMT IN THE CITY

+

Shanghai's core CBDs are attracting a new wave of tenants from the technology, media and telecommunication (TMT) sectors

As Shanghai's economy evolves, demand for technological innovation, media services and telecom infrastructure, has been growing rapidly, driven by the need to add value through manufacturing and improved efficiency. TMT expansion is also driven by the maturing nature of the business environment in Shanghai, which is boosting demand for office space in the city. Between 2007 and 2015, Shanghai office take-up by TMT firms jumped 75%, an impressive growth rate compared to the 25.7% growth in the finance, insurance and real estate services (FIRE) sector in the same period.

We have seen domestic TMT companies take up a huge amount of space in their rapid expansion, including global success stories, such as Xiaomi and Alibaba, which quickly grew from start-ups to household names. International TMT giants have also strengthened their presence in the city through organic growth, as well as mergers and acquisitions in recent years.

Owing to a supply shortage in the core CBDs, the fast-emerging TMT sectors are also driving office space consolidation and decentralisation. Technology and telecom companies are increasingly turning to the business parks in new industrial clusters, such as Daning, Jinqiao, Linkong and Wujiaochang, thanks to rental price sensitivity, proximity to competitors and government incentives. However, a number of large media groups prefer to maintain a presence in higher-rent Grade-A office buildings in core locations to help attract and retain talent.

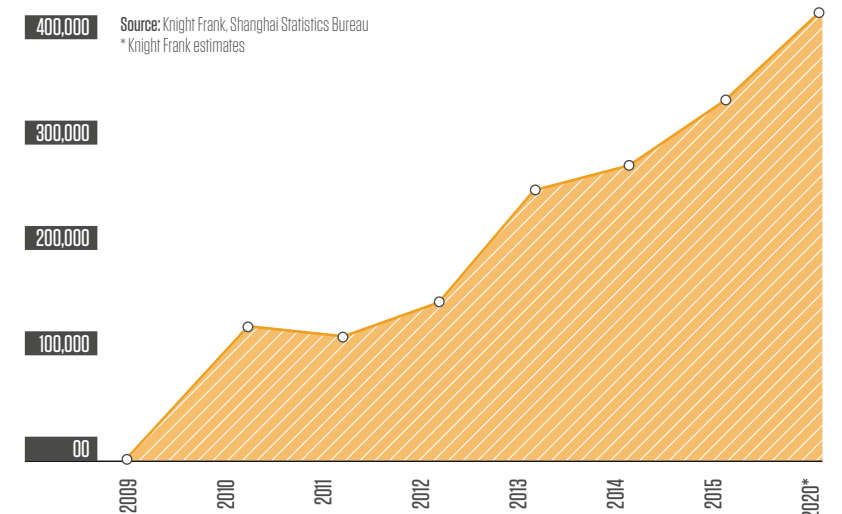
As the market has become more mature and competitive, the rapid expansion has also driven consolidation in some industries, such as media, with some enterprises targeting pre-leasing opportunities. Last year, for

Nanjing Road,
Shanghai, China

example, international media group WPP relocated its 26 subsidiaries to the WPP Campus in the New Jing'an District, occupying 41,000 sq m. Also, advertising and public relations company Publicis Groupe and its subsidiaries moved into Henderson 688 in Jing'an District, taking about 11,000 sq m.

Looking ahead, as Shanghai has ambitions to become a science and technology centre, we expect government-backed incubators to generate more office demand in both traditional hi-tech districts and emerging CBD areas. The TMT sectors will take a bigger slice of the employment pool and should take up around 15% of Shanghai's total office stock by 2020, making it an even more influential sector of the market.

NUMBER OF EMPLOYEES IN THE TMT SECTOR



BEIJING:

THE RISE OF JING-JIN-JI

WRITTEN BY

David Ji,
Head of Research
and Consultancy,
Knight Frank
Greater China

Beijing struggles with chronic traffic congestion, choking pollution and a housing shortage. At the same time, the capital is looking to enhance its role as China's leading first tier city and economic powerhouse. To accomplish this, the municipal government is both expanding the existing CBDs, and further developing the outlying suburbs. Even nearby cities and provinces will be integrated into a super city cluster around the capital over the next ten years.

Beijing's municipal government is already planning to move its offices by 2017 to the Tongzhou district, a suburban area 20 km east of the city centre, making Tongzhou the city's "sub-administrative centre". Expectations are high, as the district is already undergoing rapid development, with house prices accelerating. This has transformed the development landscape in Beijing. More developers have now chosen Tongzhou to develop land plots to be closer to the new government offices.

Central Business
District, Beijing, China



+

A massive super-city cluster will emerge around China's capital over the next decade

JING-JIN-JI CITY CLUSTER



This is just part of a larger regional plan, as the Central Government is also developing the "Jing-Jin-Ji" economic megalopolis, which integrates Beijing ('Jing'), Tianjin ('Jin') City and Hebei Province ('Ji'); three northern Chinese regions with a combined population of more than 100 million. Beijing will start to relocate facilities that are unrelated to its "capital functions", such as some factories, hospitals and universities, from the city centre to the Jing-Jin-Ji cluster. Tianjin and Hebei will therefore benefit from jobs and businesses transferred from Beijing.

City clustering is an on-going urbanisation trend in China. It bundles cities around a strong urban centre with advanced rail and road networks and utilises the comparative advantage of each city to forge a strong financial and manufacturing hub. Following the success of the Pearl River Delta, clustered around Guangzhou and Shenzhen, and the Yangtze River Delta around Shanghai, the Jing-Jin-Ji region is set to become China's third largest super-city cluster. It will cover a vast region of northern China roughly the size of U.K., France and Germany put together.

The various benefits of businesses moving from central Beijing to the Tongzhou district include more space, and less congestion and pollution. Since the release of the Government's strategy paper on Jing-Jin-Ji in May, the trickle of removal trucks heading towards the eastern suburbs of Beijing has become a torrent of businesses, funds and services, which will propel China to a momentous new phase of economic and urban development.

DELHI

THE HUB AND SPOKE OF NORTH INDIA

WRITTEN BY

Ankita Sood,
Consultant, Research
Knight Frank India

+

Delhi is poised to benefit from the opportunities across the logistics value chain, fuelled by a renewed focus on infrastructure development and the e-commerce boom

India's logistics sector has come a long way from being a traditional storage and distribution system to a well-managed supply chain that focuses on quality, efficiency and cost management.

Propelled by the Central Government's pro-business policies, initiatives such as the National Manufacturing Policy aim to increase manufacturing's share in the GDP to 25%. The 'Make in India' movement places emphasis on building best-in-class manufacturing infrastructure, and there is a push underway to develop infrastructure through inter-state industrial corridors, with supporting rail freight lines. Consequently, the logistics sector in India is being transformed.

The logistics sector can be broadly classified into three areas – transportation, distribution and storage, and it is the storage sector that has recently garnered attention from developers and private equity investors in the National Capital Region (NCR) of Delhi. Its strategic location, a large population base and being one of the largest manufacturing hubs in the country makes NCR one of the leading warehousing nodes in India.

Being the gateway to North India, warehousing in NCR operates on a hub and spoke model, wherein it receives products from various origins, consolidates them and sends them directly to nearby urban centres. It also houses large inland container depot (ICDs) with provisions for railway sidings, thus connecting to ports such as Jawaharlal Nehru Port Trust (JNPT) and Mundra near Mumbai.

Currently, NCR's total stock of warehousing space is estimated to be 223 million sq ft, of which more than 80%, or 187 million sq ft, is with the manufacturing sector. The food processing, auto, chemical and pharmaceutical sectors account for 70% of the total warehousing space occupation in the region.

Consumption-based demand, on the other hand, is fuelled by NCR's large population. With a population of 22 million, NCR is the largest market in India in terms of retail spending, with Delhi, Gurgaon and Noida contributing the most. The changing rules of the retail industry and the



Rickshaws in Delhi,
India

advent of e-tail have further necessitated the need for huge warehouses close to the urban centres in order to distribute and deliver in the shortest possible time.

Backed by favourable government policies, such as the 100% FDI in e-commerce and food storage facilities and the declaration of some zones as tax-free, the demand for the warehousing sector in India is set to grow and place the National Capital Region of Delhi as an important warehousing hub.

INDIA'S DEDICATED FREIGHT CORRIDORS

— Western Dedicated Freight Corridor — Eastern Dedicated Freight Corridor



SINGAPORE

DECENTRALISATION OR RECENTRALISATION?

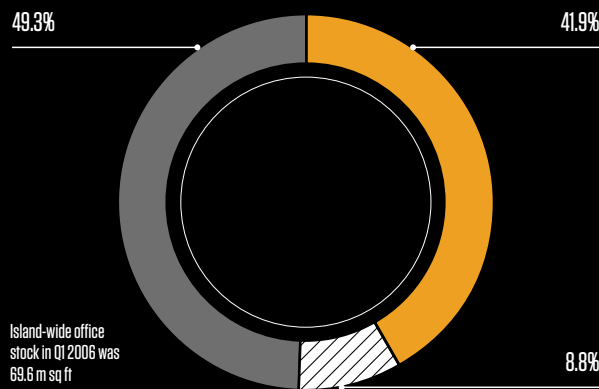
WRITTEN BY

Alice Tan,
Director and Head, Consultancy & Research,
Knight Frank Singapore

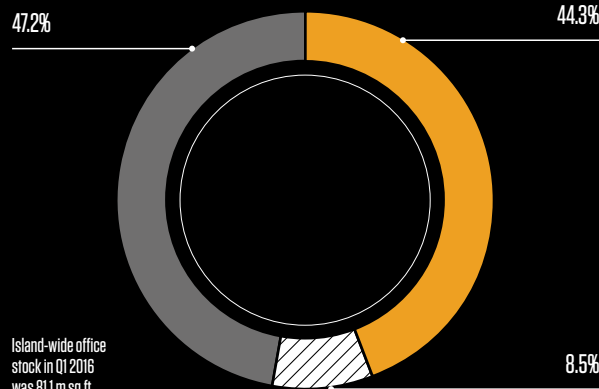
DISTRIBUTION OF OFFICE STOCK, Q1 2006

Source: Realis, Knight Frank

■ CBD ■ Suburban ■ Outside CBD & City Fringes



DISTRIBUTION OF OFFICE STOCK, Q1 2016



+

The push for decentralisation could accelerate as Singapore expands new business precincts and the public transport network



Financial District, Singapore

As Singapore continues to advance its built environment to augment itself as a global and regional centre of finance, communications, trade and commerce, the office landscape has been growing appreciably. Since the introduction of decentralisation strategy that was firstly mooted in the 1991 Concept Plan, a series of hierarchical commercial centres were planned, i.e. regional centres, sub-regional fringe centres and smaller precincts. While office space stock in the Central Business District (CBD, i.e. Downtown Core) grew by 23.4% for the past ten years to reach around 36 million sq ft in Q1 2016, the outside-CBD and city fringe areas saw a growth of 11.6% to touch 38 million sq ft; the Outside Central Region (i.e. suburban areas) expanded by 12.5% to reach close to seven million sq ft over the same period.

The Urban Redevelopment Authority has rolled out some significant city fringe and suburban precincts to push ahead with the decentralisation strategy. Suburban regional centres such as Tampines and Changi are now the backroom hubs for various financial institutions, as they sought cheaper office occupation costs in business park and office spaces. The next emerging city fringe precinct that is rising in popularity is one-north, occupying a total of 185 hectares of land area and housing an increasing number of companies from biosciences, research & development institutes, multinational corporations such as Volvo and Shell, and now from the TMT sector (i.e. Telecommunications, Media and Technology).

Despite the flight to lower-cost office space in the city fringes and suburban areas in the last couple of years, the falling office rental trends in Singapore, especially for prime grade office buildings located in the CBD, is attracting companies back to the CBD. With the global finance business undergoing a consolidation phase with various financial institutions giving up some of their office space and coupled with lower demand from many enterprises, office rents of prime grade A and A+ spaces in the CBD has declined by 11.9% for the past five quarters from its previous peak in Q1 2015. Following this trend, the 'flight-to-quality and back to the city centre' phenomenon is gathering pace.

In addition to taking advantage of lower rents in the CBD, more companies are seeking prime locations in the city centre with better quality office specifications, enabling them to create more conducive office interiors. Concepts such as the agile

activity-based working are gaining in popularity in Singapore, as part of companies' recruitment and retention strategies for aspiring young professionals.

“CONCEPTS SUCH AS THE AGILE ACTIVITY-BASED WORKING ARE GAINING IN POPULARITY IN SINGAPORE, AS PART OF COMPANIES' RECRUITMENT AND RETENTION STRATEGIES FOR ASPIRING YOUNG PROFESSIONALS”

THE CBD REMAINS THE HUB

The growing scale and vibrancy of the CBD have proved to be strong magnets to attract a wider occupier base, ranging from finance and insurance, trading and professional services, to even co-working spaces, working and learning in close proximity and harnessing a pulsating business ecosystem. This would be difficult to replicate in city fringe and suburban precincts in the near term. Based on Knight Frank Office Advisory team's observations, the proportion of office tenants looking to renew, relocate or set up new office in the CBD remains high at around 70% since mid-2015.

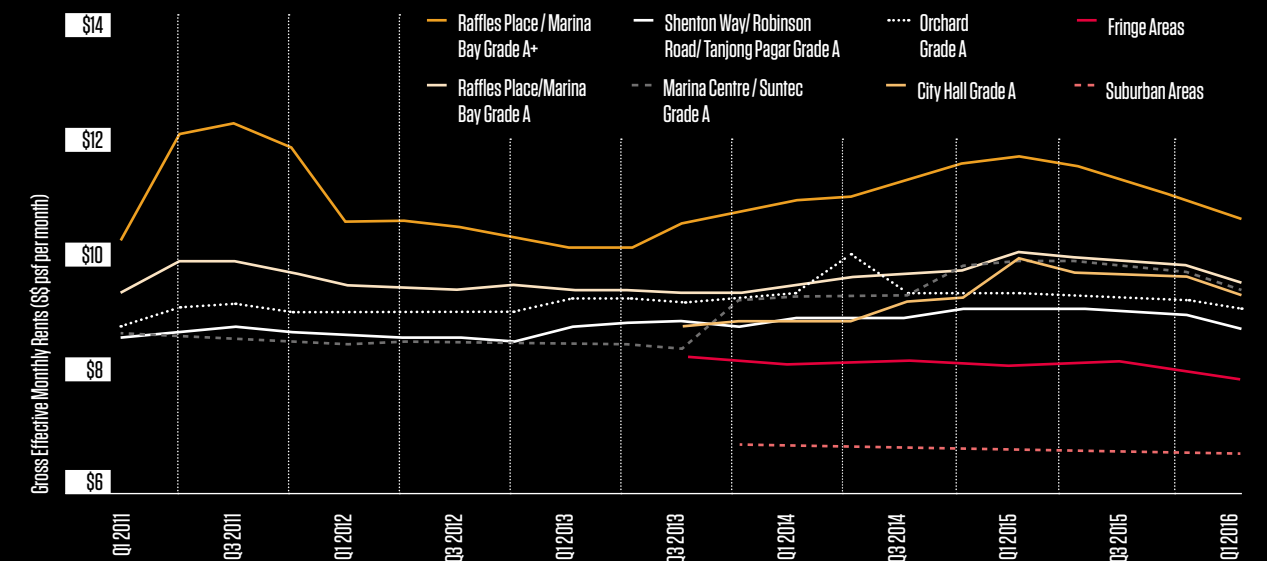
GOVERNMENT'S NEXT DECENTRALISED LOCATIONS

Singapore's commercial real estate stock will need to expand to support its long-term objectives of creating a diversified and sustainable economy, targeting areas such as health care, education, logistics, aerospace, petrochemicals, and biotechnology. Additionally, Singapore's plans to build a Smart Nation, through the Smart Nation iN2015 masterplan, will support the evolution of future workplaces that could weave commercial and industrial spaces in new formats that might be better created in new precincts beyond the city centre.

Since the award of the land tender at Paya Lebar Central in east city fringe of Singapore, the government's plans to develop Woodlands North Coast, Jurong East Regional Centre and Jurong Innovation District are underway. The office stock in the suburban areas is likely to grow at a higher rate in the next ten to 15 years.

AVERAGE GROSS EFFECTIVE MONTHLY RENTS OF KEY OFFICE PRECINCTS

Source: Office Department



The Skybar at Traders Hotel, Kuala Lumpur, Malaysia

+

The ambitious Economic Transformation Programme (ETP), launched in 2010, has set the pace for rapid growth as Malaysia moves towards its goal of achieving developed-nation status by 2020

WRITTEN BY

Judy Ong,
Executive Director,
Knight Frank Malaysia

KUALA LUMPUR THE FDI HUB

Greater Kuala Lumpur (Greater KL), comprising the capital city of Kuala Lumpur and its surrounding metropolitan areas, is the pulse of the country. The sprawling metropolis, encompassing 2,793 sq km, is home to some 7.9 million people and the world's fifth tallest skyscraper, Petronas Twin Towers, towering at 451.9 metres.

Strategically located in the heart of ASEAN, Greater KL is well positioned as a regional hub for diverse economic and business activities. Various stakeholders, both in public and private sectors, continue to make strides in attracting global multinational companies (MNCs) to set up their regional hubs in this growing urban conurbation. As of 2015, InvestKL, an agency set up specifically for its purpose in 2011, has attracted 51 MNCs with cumulative approved / committed investments of U.S.\$1.5bn and created 7,156 high skilled job opportunities. With another three new MNCs secured in 1H2016, the agency remains on track to meet its target of 100 MNCs by 2020.

Malaysia is the fifth largest recipient of foreign direct investment (FDI) inflows in East and South-East Asia according to the UNCTAD 2015 World Investment Report. In the first quarter of 2016, the country attracted U.S.\$3.7bn FDI (2015: U.S.\$10.6bn) while its services driven economy continued to chart commendable growth, expanding 4.2% (2015: 5.0%) despite a protracted period of low crude oil and commodity prices coupled with a weak currency.

By 2020, the skyline of Greater KL is set to change dramatically with scheduled completions of the iconic 118-storey Merdeka PNB118 standing at 630 metres and the 92-storey Signature Tower (Indonesia's Mulia Group) in the financial district of Tun Razak Exchange (TRX). The latter, primed as the country's

financial and banking district, will also house the 17-acre TRX Lifestyle Quarter, Lendlease's largest integrated development in Asia that will feature a luxury hotel, six residential towers and a retail destination connected to the TRX Park and dedicated Mass Rapid Transport (MRT) station. Other notable projects include the regeneration of former gaol and air base sites, namely the 19.4-acre U.S.\$2.2bn Bukit Bintang City Centre mixed use project and the 486-acre Bandar Malaysia as well as the rejuvenation of Damansara Town Centre by JV partners, Pavilion Group and Canada Pension Plan Investment Board (CPPIB), in the Pavilion Damansara Heights project.

Global luxury hospitality operators continue to see Malaysia, a melting pot of cultures, as an appealing destination in the region despite recent declines in tourist arrivals. The debut of the famed St Regis brand at KL Sentral (and Langkawi Island) recently will be followed by the entry of Kempinski Hotel Group (8 Conlay project); AccorHotel's Sofitel and So Sofitel brands (Guocoland's Damansara City project and Oxley's Jalan Ampang project); and Fairmont Hotels & Resorts (Lot 185 KLCC project).

Keeping pace with rapid urbanisation, development in transport infrastructure is being stepped up in Greater KL. By 2022, the scheduled completion of some 140km rail link from the on-going proposed Mass Rapid Transit (MRT) and proposed Light Rail Transit (LRT) lines will greatly enhance mobility and connectivity within the region and help transform Greater KL into a sustainable and liveable metropolis. The recent signing of the Memorandum of Understanding (MoU) between the Governments of Malaysia and Singapore on the High-Speed Rail (HSR) linking Kuala Lumpur and Singapore, brings the game-changer project a step closer to reality.



INDUSTRY 4.0 IN BANGKOK

+

Thailand embraces the Fourth Industrial Revolution

Thailand is facing an issue not often found in developing economies. Due to the previous success in controlling population growth, which significantly lowered poverty rates in the country, it is now stuck with an aging society and a skilled-labour shortage.

Based on a recent nationwide survey, a quarter of businesses are reporting shortfalls of hires and another report suggests for every 100 openings, companies could only find 77 recruits. This is an undesired outcome of Thailand's very low rate of unemployment which has averaged around 1% for the past ten years. The problem is even more pronounced in the industrial sector where around 600,000 vacancies remain unfilled. This issue leaves industrial expansion plans stuck at square one.

Thai businesses have always recruited from neighbouring countries, but as living standards and wages improve in migrant workers' own countries, businesses are now scrambling for a more sustainable solution.

The fourth industrial revolution, often referred to as Industry 4.0, is currently one of the Thai government's most recent initiatives to address the labour shortage, and increase the nation's output. Backed by Thailand's Board of Investment (BOI) a number of manufacturers have shifted to smart factories where cyber-physical systems make decentralised production decisions as the machines monitor actual physical processes by themselves.

Thailand is the world's second largest producer of computer hard drives after China accounting for about 40% of global HDD production, exporting more than U.S.\$12bn worth annually. One of the leading players in this industry, Seagate Technology was amongst the first multinational firms in Thailand to have invested in a fully automated smart factory, where their robots assemble hard drives 24 hours a day, while providing humans with real time updates via internet of things.

Industry 4.0 is not limited to changes at the factory, Thai soft drink maker Ichitan employs a fully automated warehouse, which determines

the number of packages to be sent to the bay for shipping based on the sales data it automatically acquired through the cloud, via point of sales devices at retail outlets in the city.

There is still some debate about what Industry 4.0 will mean to the global manufacturer and the trend to relocate to increasingly risky lower wage countries. Certainly many in the West hope to see Industry 4.0 spark a trend of 'onshoring', where their manufacturers bring their factories home, but the competition for this direct investment is far from over as relatively low cost markets with established industrial bases like Thailand also race towards the fourth industrial revolution.

WRITTEN BY

Risinee Sarikaputra,
Director, Research and Consultancy,
Knight Frank Thailand

Factory robots at work



TRADE AND INVESTMENT

BUILDS BOGOTÁ

+

A new wave of government and foreign investment, and trade treaties, are brightening the outlook for Colombia's capital

WRITTEN BY

Juan Pablo Jiménez,
Managing Director,
Newmark Grubb,
Fonnegra Gerlein

Colombia's situation has improved dramatically in the last ten years. The nation's economy has remained stable, which has attracted a growing number of multinational companies, investors and institutional funds. The peace process has also improved internal security and stability, although challenges remain.

Local government has strengthened investment in key economic sectors, including infrastructure. As a result,

more engineering companies are opening in Colombia, attracted by government contracts to build new highways. Other investment has focused on mining, education, technology and housing.

In addition, the government has signed several free trade agreements with countries such as South Korea, Israel and the United States, and has formed alliances with the European Union and the Pacific Alliance. These agreements will streamline business environment, and attract more multinational companies to the growing Colombian market.

Five years ago, the office market in Bogotá and Colombia's other large cities – Medellín, Barranquilla and Cali – had little new inventory. Companies interested in new office space and business expansion were limited to a few options. While Bogotá's zoning plan accelerated the construction of several buildings in the main business district, these were delivered during a period of economic weakness, creating some over supply.

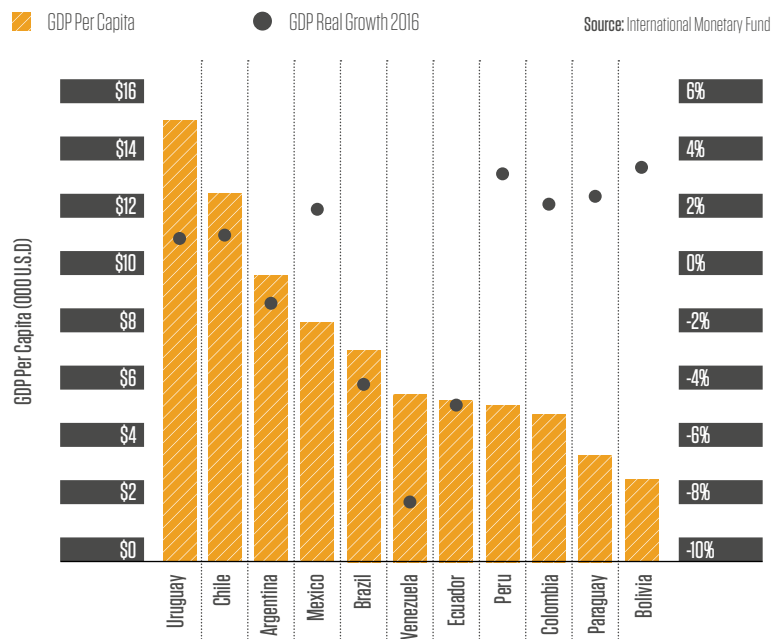
As a result, Bogotá's office market has slowly shifted from the landlords' favor to the tenants'. Institutional funds that bought office buildings expecting high returns are now competing with each other and offering tenant incentives, which has never occurred before in the market. This phenomenon has started to spread to other property types, including industrial and retail, that are also coping with excess supply.

Nonetheless, Colombia's office market still holds appeal for landlords as well as tenants. Prices remain soft but are beginning to stabilize. The nation's economy and business environment remain on the right track. There are still problems to solve, but the government and the people are feeling the positive winds of change.

Bogotá, Colombia



KEY ECONOMIC STATISTICS, 2016



MORE GROWTH AHEAD FOR MEXICO CITY

+

A new airport and a growing middle class population will drive Mexico City's economy and real estate market

Mexico City leads the Latin American region in real estate development. Despite the global economic downturn and fall in oil prices, Mexico's economy has held stable due to the strengthening of the nation's automotive, telecommunications, logistics and retail sectors, among others.

Additionally, Mexico City's economy has benefitted from major investments in infrastructure, including its new international airport, which is currently under construction to the east of the city. The first phase of development, scheduled to complete in the early 2020s, is expected to provide capacity for up to 50 million passengers and 550,000 flights a year. Once all construction is completed, the airport's capacity is expected to increase to 120 million passengers and one million flights a year by 2050.

Mexico City's growing middle class, known for its youth and high rate of consumption, has spurred the development of large mixed-use projects within the city's main office sub-markets, including Paseo de la Reforma, Polanco, Lomas de Chapultepec and Insurgentes. These sub-markets also feature a number of buildings that have been redeveloped as modern housing and office buildings, as well as new, high quality shopping centers.

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The Mexico City office market has seen robust construction activity in recent years, with an inventory that currently exceeds 50 million sq ft, and is expected to top 80 million sq ft by 2020. In fact, the city's office inventory has grown by 200% since 2000, with 170 new buildings. Most of these new spaces are eco-friendly and meet high quality standards.

Mexico City's industrial market has also grown substantially over the last decade, in order to meet the level of demand for consumer goods generated by a population exceeding 20 million people. With more than 80 million sq ft of industrial space, Mexico City's industrial inventory, which is concentrated within the Cuauhtlán, Tultitlán and Tepotzotlán corridors, is second only to Monterrey's.

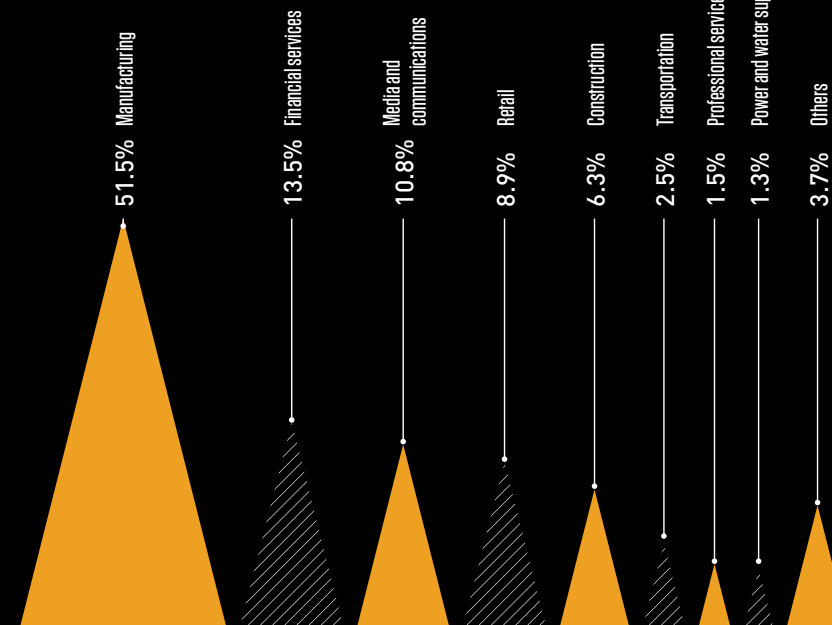
Absorption levels have been solid, as more international companies from the automotive, food and beverage, technology and logistics sectors have established operations in the country. This reflects investors' strong interest in Mexico City, which historically has received constant foreign direct investment inflows and is the entrance to new emerging markets in Latin America.

Paseo de la Reforma,
Mexico City, Mexico



FOREIGN DIRECT INVESTMENT INTO MEXICO, 2015

Source: Secretariat of Economy



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This report was researched and written during the period May to mid-August 2016, based on evidence and data available to Knight Frank LLP and Newmark Grubb Knight Frank at the time. Rents quoted in the reports are in US dollars, but growth rates are in local currencies to remove exchange rate effects. Americas rents quoted in this

report are prime average asking rents, whereas rents in other geographies are quoted normal prime achieved.

Forecasting is an inherently uncertain activity and subject to unforeseeable changes in the external environment, and we note the particularly high level of geopolitical, financial market, and economic risks facing the global economy at the time of publication. These present downside risks to the forecasts in this report.

