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TOP LOCATIONS IN ASIA – TECHNOLOGY SECTOR

Summary & Recommendations

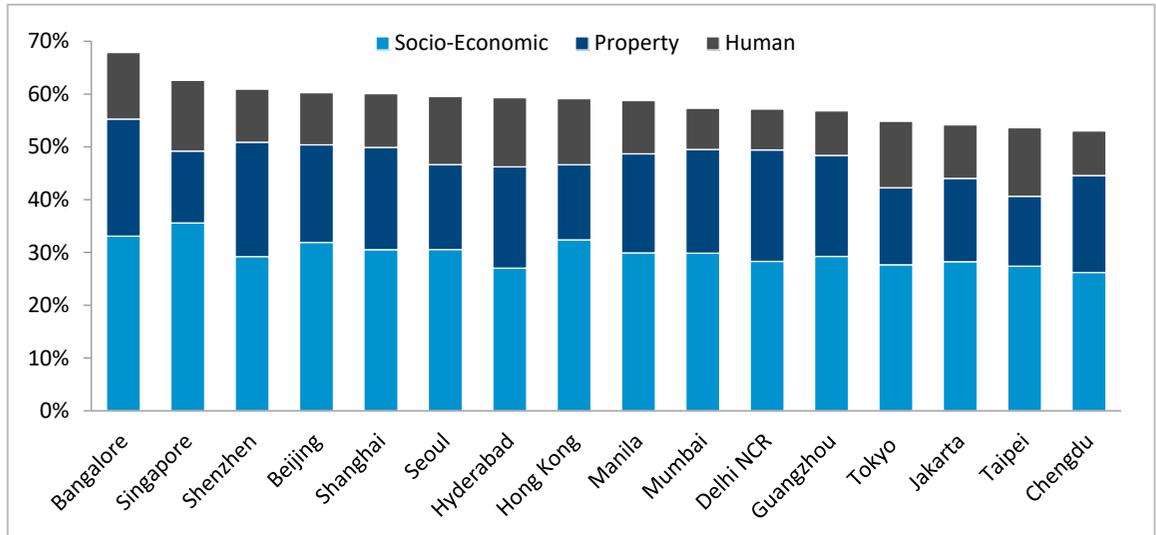
Based on quantitative and qualitative analysis of socio-economic, property and human factors, Colliers concludes that the three top location choices in Asia for technology occupiers are Bangalore, Singapore and Shenzhen.

- > Bangalore's first place reflects Asia's top long-run growth, depth of talent pool, ample office stock, low staff costs and rents, and a low cost of living.
- > Singapore's second place reflects its strong reputation as a source of talent and leading position on aspirational measures; this outweighs the city's lower ranking on property metrics.
- > Third-placed Shenzhen has seen its technology base widen through high R&D. It scores well on property factors, reflecting ample availability of office stock and high planned new supply.

Bottom-up analysis of factors such as planned strategic development suggests that Beijing and Hyderabad are more attractive than their scores suggest. These cities represent attractive alternative location choices on a medium-term view.

Hong Kong may also rise as a tech centre. It should benefit from proximity to South China, recent expansion by big technology groups, and surging investment in fintech.

Overall score: three cities on 61% or higher



Source: Colliers International, based on data inputs from numerous sources

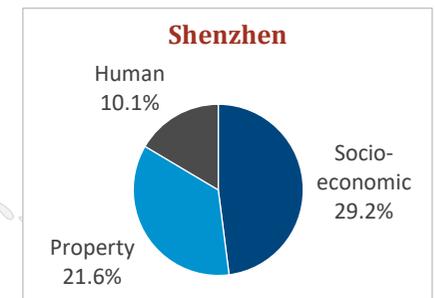
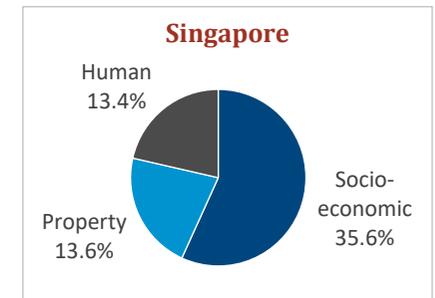
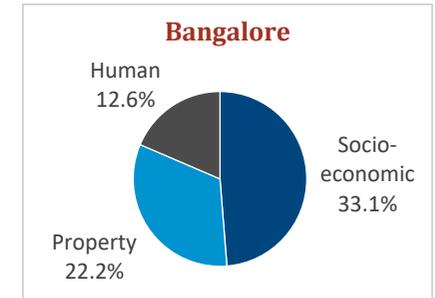
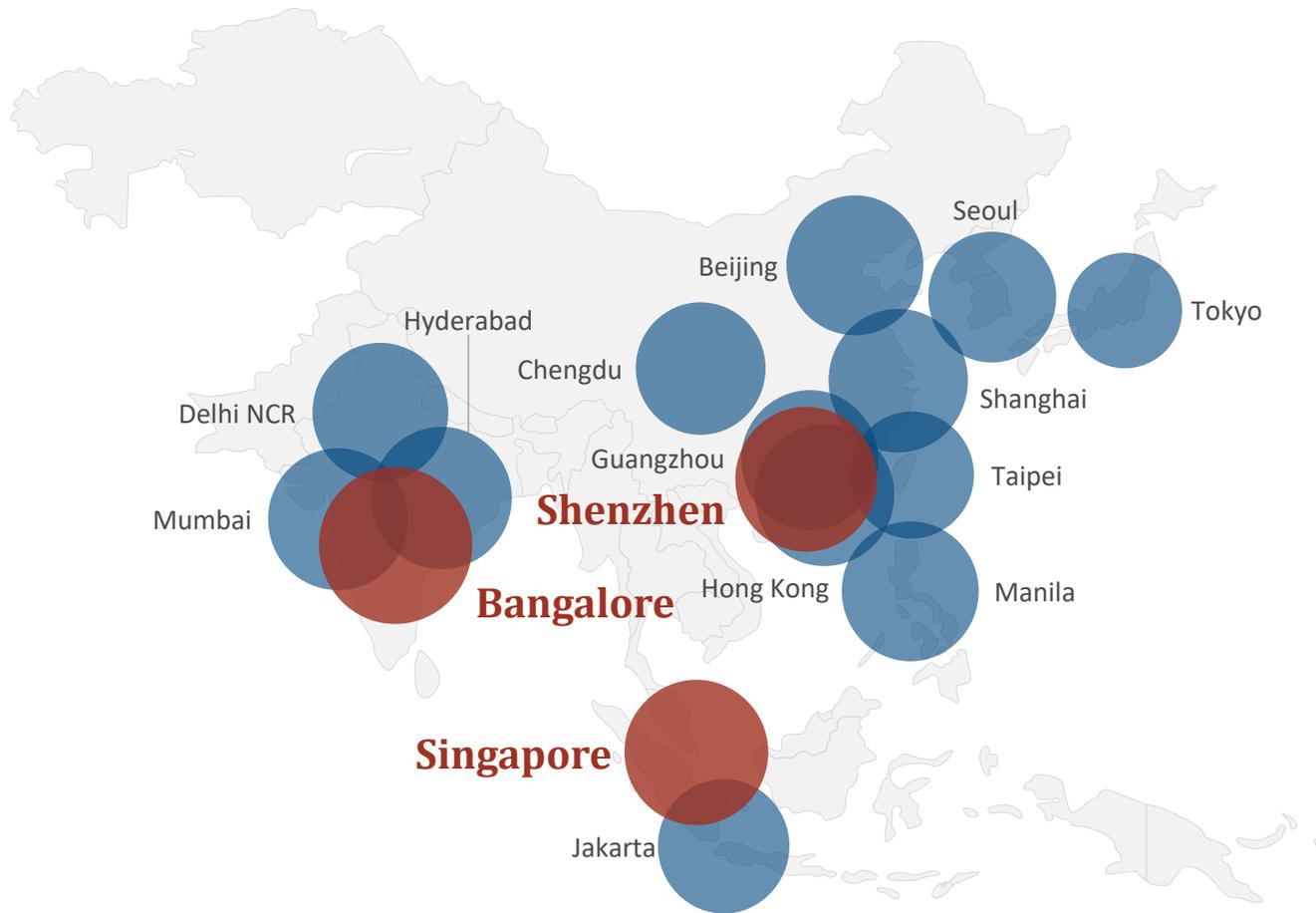
Colliers' "Top Locations in Asia (Technology)" report builds on our earlier "Tech Trends in Asia" research by recommending the best urban locations for technology occupiers. For 16 cities in developed and emerging markets, we examine nearly 50 criteria relevant to choice of location under three headings, **socio-economic factors**, **property factors** and **human factors**, and assign a score on each metric.

"Tech Trends in Asia" had four conclusions. Acquiring **Talent** is the key challenge for technology groups in Asia. Talent is concentrated in specific cities in key markets, notably **Chindia** (China and India), which also offer high growth. To retain talent, technology groups need to move toward the **CBD** or CBD fringe. Finally, **artificial intelligence (AI)** threatens demand for space, but will drive growth and returns. These conclusions lead us to weight growth and availability of talent highly in our "Top Locations" scoring.

Three cities score 61% or above: **Bangalore**, **Singapore**, **Shenzhen**. These are the top choices for starting or expanding technology operations in Asia. Bangalore scores highly on long-run growth and low costs; Singapore scores highly as a talent source and on aspirational metrics; Shenzhen ranks well on property measures. **Beijing and Hyderabad** are attractive alternatives, and **Hong Kong** is starting to be exciting.

The scores for the other cities lie between 60% and 50%. Dull long-run growth prospects hold down developed cities like Tokyo and Taipei, despite good scores on human factors. Emerging cities mostly have high growth and low costs, but suffer on employment criteria and human aspirational metrics.

CITY HEAT MAP – TECHNOLOGY



TOP TECH LOCATIONS

Bangalore

Score: 68%. Overall position: #1

- > Est. avg. real GDP growth 9.6% over 5 years
- > Office stock: 141mn sq ft (13.1mn sq metres)

Bangalore's greatest strengths are socio-economic: the city looks set to be [the fastest-growing in Asia](#) over the next five and perhaps the next ten years, and it benefits from a [wide and deep talent pool](#). Other advantages of Bangalore include the [largest stock of Grade A office space in Asia after Tokyo](#), [low employer costs](#) (reflecting moderate staff costs and office rents), and a [low cost of living](#). However, Bangalore scores less well on measures of quality of office accommodation and quality of infrastructure.

*Singapore*

Score: 63%. Overall position : #2

- > #1 for talent and on employment criteria
- > #1 on human aspirational measures

Singapore's second place reflects the city's high score on socio-economic factors, due largely to its [strong reputation as a source of talent](#), as well as a [high position on aspirational measures](#) such as personal tax rate, safety and living quality. Looking ahead, Singapore should continue to benefit from its position as the [natural financial and communications hub of South East Asia](#), and from the government-supported [transition to the so-called Fourth Industrial Revolution](#). We envisage supply of [business park and high-specification industrial space doubling by 2030](#).

Shenzhen

Score: 61%. Overall position : #3

- > Higher GDP than HK, broad technology base
- > Ample office and flexible space; supply over 2018-20 exceeds office stock at end-2017

Heavy investment in R&D [has broadened Shenzhen's technology base](#) far beyond originally dominant hardware manufacturing. Shenzhen scores well on property factors, due [to moderate employer costs, ample availability of office stock and flexible workspace, and planned new supply](#). Shenzhen has [overtaken Hong Kong by GDP](#) and should benefit over time [from closer integration of the Greater Bay Area](#). New development of the Qianhai district and the large-scale renewal of the Luohu district are additional strengths.



ALTERNATIVE TECH LOCATIONS

Beijing

Score: 60%. Overall position : #4

Beijing scores highly on economic scale and growth potential, and is respected as a source of talent. It is China's leading university city; and we note that the technology occupiers in our "Tech Trends" report of December 2017 considered Beijing/North China to be the single greatest source of talent within Asia. Staff costs are moderate even if CBD rents are the highest in China. The city scores less well on measures of human aspiration. Beijing appears especially well-placed to strengthen its position as a leading centre in the field of artificial intelligence (AI).



Hyderabad

Score: 59%. Overall position : #7

Like all Indian cities, Hyderabad scores highly on growth potential, although it scores less well on other socio-economic factors and does not yet match Bangalore as a source of talent. Office stock currently stands at only 40% of the level of Bangalore, but development is proceeding apace, with total stock set to increase by 60% by 2021 by our estimate. The fact that technological development is focused in one district, Hitec City, makes planning in Hyderabad relatively easy. Tax rates and cost of living are low, and Hyderabad scores better than many other Indian cities on other human factors.

WILD CARD TECH LOCATION

Hong Kong

Score: 59%. Overall position : #8

Hong Kong is not usually seen as a key centre of innovation, and we are not ready to recommend it as a top location for technology occupiers. However, Hong Kong is becoming more exciting for several reasons. These include proximity to Shenzhen and South China; recent expansion in Hong Kong by technology leaders like Facebook and Alibaba; and accelerating investment in fintech in the city, including planned expansion by major banks like JP Morgan. In addition, the Hong Kong Science & Technology Park is helping to nurture new technology talent, providing over 3.5 million sq ft (325,280 sq m) of laboratory and office space.



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INTRODUCTION TO “TOP LOCATIONS IN ASIA”

Colliers’ “Top Locations in Asia” research aims to identify and recommend the best urban locations in Asia for three major Occupier segments: Technology, Finance and Law. We examine a wide range of considerations relevant to choice of location under three headings: socio-economic factors, property factors and human factors. Altogether we examine 16 large Asian cities in both developed and emerging countries. This report presents the conclusions of our work for the technology sector. Our analysis draws on earlier research that we have carried out on the technology sector, especially our report “Tech Trends in Asia” (5 December 2017).

67.9%

Human
12.6%Property
22.2%Socio-
economic
33.1%

CITY PROFILES

Bangalore

Bangalore (Bengaluru) scores 68% in our ranking and comes first overall. Bangalore, the Silicon Valley of India, is the largest office market in the country, with total Grade A stock of 141 million sq ft (13.1 million sq metres) spread across multiple micromarkets. On this basis Bangalore ranks as the second largest urban office market in Asia after Tokyo. Bangalore thus offers technology occupiers ample space to house their operations.

In recent years the information technology sector has accounted for 60–70% of gross absorption of space in India (although this proportion has been slipping due to increased demand from other sectors), and because Bangalore is IT companies' location of choice, the city has usually accounted for 30–35% of gross office absorption across the whole country. In Q2 2018, we estimate that this figure was 34%.

Apart from its high stock of office space, Bangalore's biggest advantages are high long-run economic growth potential and its deep talent pool. Regarding growth potential, Oxford Economics places Bangalore at the top of its list of growth forecasts for Asian cities over the next five years and ten years (see, e.g. Oxford Economics' Asia Pacific Cities & Regions Outlook of March 2018), with real GDP set to rise at an average annual rate of 9.6% over the next five.

Regarding talent pool, Bangalore remains the clear preference of most technology groups, with the sector accounting for 45% of total office leasing volume in Q2 2018. Technology was followed by flexible workspace representing 26% of leasing volume, engineering and manufacturing on 16%, and banking on 11%.

Bangalore's popularity with technology occupiers reflects the fact that it comes top in India on measures of talent availability. In our research we have combined the top university, international outlook, research and teaching rankings supplied by the Times Higher Education World University Rankings into a single weighted score. Bangalore scores 8.4% – well behind top-ranked Singapore on 15.0%, but ahead of Delhi on 4.6% or, for that matter, Taipei on 6.9% and even Shanghai on 7.7%.

Under the heading of property factors, other advantages of Bangalore include low employer costs, reflecting moderate staff costs and office rents. Under the heading of human factors, Bangalore benefits from a low cost of living, although it scores less well on measures of quality of office accommodation and quality of infrastructure.

Disadvantages of Bangalore include relative India's relative remoteness from markets in East Asia and increasing congestion. The latter problem results from the fact that investment in infrastructure has not kept pace with overall development. For example, while the Outer Ring Road in Bangalore remains one of Asia's leading technology hubs, Colliers India Research has identified seven bottlenecks or "pain points" along the route. Infrastructure problems are not great enough to change our view on Bangalore, but are a risk to watch.

The table below compares Bangalore and its emerging rival Hyderabad on various measures. Further comparisons are included in the section of this report on Hyderabad.

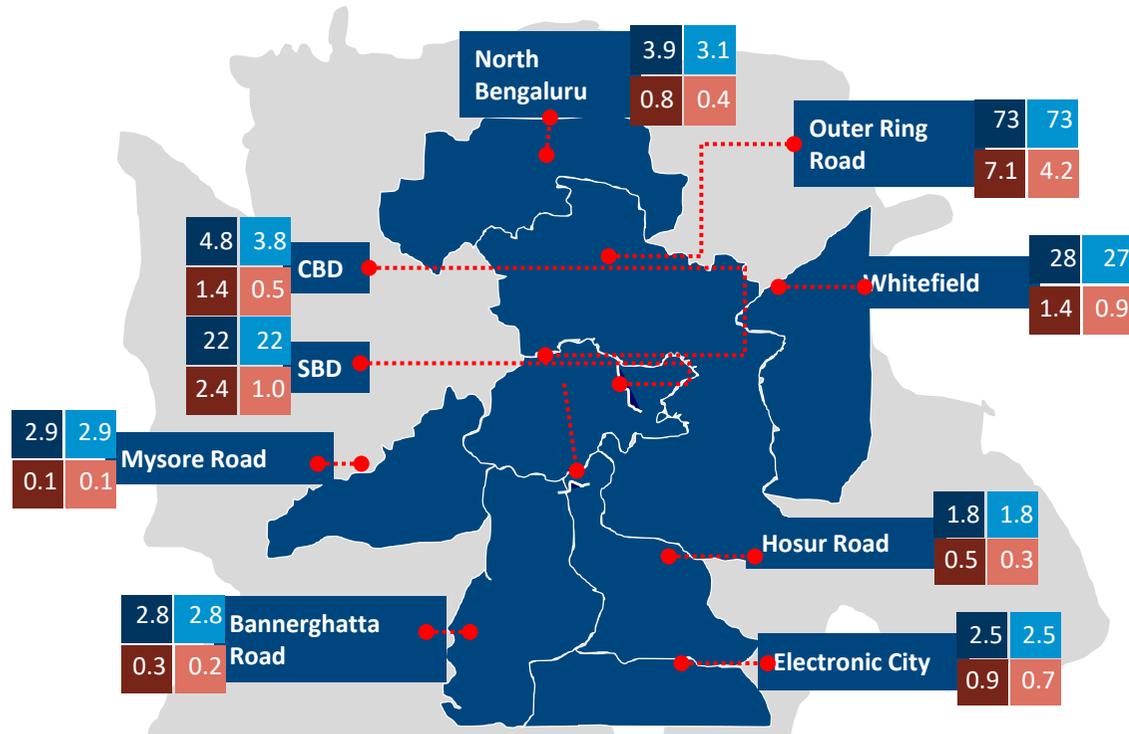
Comparison – Bengaluru vs Hyderabad

Parameter	Bengaluru	Hyderabad
Total stock	141.3 msf	56.4 msf
Gross absorption (Cumulative 2016–17)	28.1 msf	11.0 msf
% share of absorption by IT-ITeS occupiers (Cumulative 2016–17)	59%	81%
Upcoming supply (2018–2021)	23.0 msf	33.0 msf
Overall vacancy rate (Q2 2018)	10%	6%

Source: Colliers International

Note: Only Grade A office spaces are considered; IT-ITeS – Information Technology and Information Technology enabled Services; msf – million square feet

Bangalore: map of technology micromarkets



Note:
 IT-ITeS includes IT and SEZ buildings
 All areas are in millions of sq feet
 Stock data as of Q2 2018

■ Total Grade A Stock ■ Total Grade A IT-ITeS Stock
■ Total Gross Absorption (2017) ■ Total Gross Absorption by IT-ITeS (2017)

62.6%

Human
13.4%Property
13.6%Socio-
economic
35.6%

Singapore

Singapore scores 63% in our ranking and comes second overall.

Socio-economic factors

Under socio-economic factors, Singapore does not score highly on measures of growth potential or economic output; this is natural considering that Singapore is a small country with a population of just 5.6 million people. However, Singapore ranks in first place in Asia as a source of talent, reflecting the strength of the country's educational and research facilities and their perceived international outlook. Singapore also ranks first overall on employment considerations: political stability, ease of doing business, corporate tax rate, city infrastructure and English language capability.

It is in any case questionable whether the modest scores on growth potential and economic output are fair. One of the key attractions of Singapore to multinational enterprises is the country's position as the natural financial and communications hub for South East Asia. In many respects, Singapore is a gateway to the entire ASEAN region with a combined population of 636 million¹ due not least to Indonesia's position as the world's fourth most populous country. This consideration may be less important in the technology sector than in other sectors, but it is true.

Property factors

Singapore achieves average scores on property factors. Despite high per capita income, the country's position on employer costs is moderate, reflecting average rent for CBD prime grade office space of USD55 per sq metre per month or only about one-half of the level of Singapore's regional rival, Hong Kong. Singapore does not score well on office accommodation measures. The city is held back by limited total prime grade office stock of 24.3 million sq ft (2.26 million sq metres); this is only one-third of the level of Hong Kong and a fraction of the level of the larger markets like the major India cities or Tokyo. Singapore does, however, rank well on the sustainability index and city innovation index also included in our criteria.

Human factors

Singapore ranks first in Asia on human factors. A moderate personal tax rate is an important positive factor despite a high overall cost of living. Singapore then scores very highly on aspirational measures such as city safety, quality

of living, air pollution and the "High-Tech City" measure that Colliers has derived from 2thinknow and the World Economic Forum. Bangalore and Hyderabad also score highly on human factors, but this is mainly due to low cost of living. Taipei, Seoul and Tokyo approach Singapore on human factors, but do not quite match it.

Looking forward

As an example of Singapore's attraction to major technology enterprises, Facebook, the huge social media group, recently announced a plans to build an SGD1.4 billion (USD1.0 billion) data centre in Singapore, its first such in Asia. The data centre will be located in Tanjong Kling which was formerly known as Data Centre Park, and is due to start operations in 2022. Upon completion, it will be a 170,000 square metre (1.83 million sq feet), 11-storey building². Facebook stated, "We selected Singapore for a number of reasons, including robust infrastructure and access to fiber, a talented local workforce, and a great set of community partners, including the Singapore Economic Development Board and the Jurong Town Corporation..."³.

Looking beyond this decade, we believe that the Singapore government has a strong understanding of what is required for Singapore to remain a major technology hub. As Colliers has argued elsewhere⁴, the transition to the so-called Fourth Industrial Revolution or Industry 4.0 should see industrialists embrace technologies such as Big Data and analytics, augmented reality, additive manufacturing, simulation, the Internet of Things (IOT) and autonomous robots. Industry 4.0 brings exciting opportunities and challenges to Singapore's industrial landscape. The Singapore government has been supporting the transformation with new national directives aimed at creating innovative new industrial and technology parks. The plan for these new parks is shown in the map overleaf.

In our view, Industrial space of the future should provide the 3 "A's": Accessibility, Affordability, Adaptability. Even as pilot schemes for flexible land uses for industrial purposes are being tested, we envisage supply of business park and high-specification spaces doubling in Singapore by 2030.

¹ Source: Statista

² See, for example, <https://www.channelnewsasia.com/news/business/facebook-data-centre-singapore-jobs-asia-10688962>

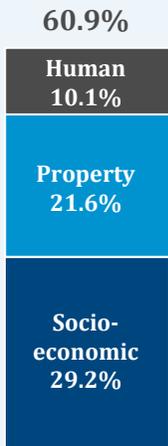
³ Source: Facebook, <https://www.facebook.com/notes/singapore-data-center/facebook-is-growing-in-asia/1911065865865814/>

⁴ See our report "Industry 4.0 - future-proofing Singapore's industrial landscape" (18 January, 2018)

Singapore Industrial Landscape by year 2030



Source: Colliers International Singapore Research, JTC, URA



Shenzhen

Strong GDP growth is driving Shenzhen

Within China, technology hardware groups have shown a strong preference up to now for the Pearl River Delta of South China, with large enterprises such as Huawei and ZTE headquartered in Shenzhen. The region is also well-known as the chief industrial base of Foxconn (Hon Hai), the Taiwanese group which is the world's largest contract electronics producer. As a result, the Pearl River Delta, now increasingly termed the Greater Bay Area and understood to include Hong Kong and Macau, has become one of the world's leading industrial regions and its biggest overall manufacturing hub.

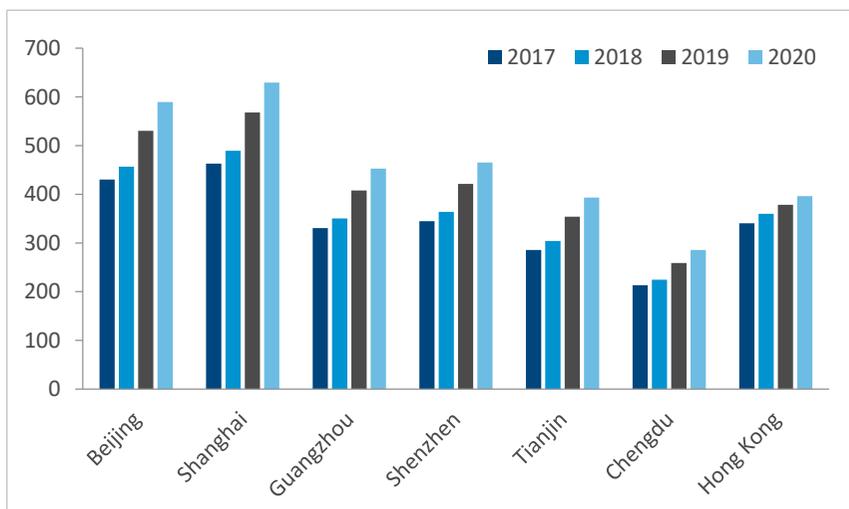
Symptomatic of the emergence of the Greater Bay Area has been the rise of Shenzhen, which is still growing at nearly 8% YOY in terms of real GDP. In 2017, Shenzhen's total GDP overtook Hong Kong's and exceeded the RMB2.2 trillion (USD350 billion) mark for the first time; its GDP was less than half the size of Hong Kong's ten years before. Shenzhen has also overtaken Guangzhou, the traditional industrial and trading centre of the region.

Heavy investment in R&D boosts technology ecosystem

Shenzhen's ascent owes much to heavy investment in research and development (R&D). Since 2013, Shenzhen has invested more than 4% of its GDP annually on research and development. The total R&D expenditure exceeded RMB80 billion (USD12.3 billion) or 4.1% of GDP in 2017, according to data collated by the South China Morning Post – a higher level than in any of Guangzhou, Hong Kong and Singapore.

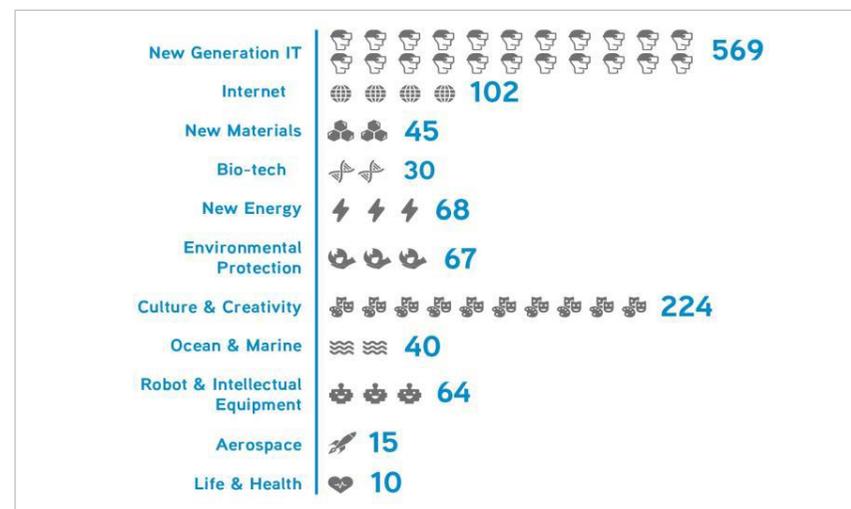
As a consequence of this heavy investment in R&D, Shenzhen's economic base has extended far beyond hardware manufacturing, and it now enjoys a much broader technology ecosystem. Emerging industry, a term used by the local government to refer to the collection of tech-relevant industries, achieved 13.6% growth with added value of RMB918.3 billion (USD141.0 billion) in 2017 and accounted for 40.9% of Shenzhen's total GDP. For specific sub-sectors, internet has increased its added value by 12.5%, new-generation IT by 23.4%, and aerospace by 30.5% in 2017 compared to 2016.

Chinese cities incl. Hong Kong by GDP at current prices (USD bn, 2017–2020 est.)



Source: CEIC, Oxford Economics

Shenzhen's 2017 GDP by different I&T sectors (RMB bn)



Source: Colliers International

According to the World Intellectual Property Organization (WIPO), Shenzhen-Hong Kong ranked as the second most innovative region globally in 2017, behind Tokyo-Yokohama, with a total of 41,218 international patent filings. Domestically, Shenzhen was ranked as the most innovative city in China by Forbes in 2017. Besides Huawei and ZTE, leading Chinese technology companies based in Shenzhen today include Tencent, Xiaomi, and DJI.

Shenzhen faces heavy new supply

The Shenzhen office market faces very heavy new office supply in coming years. Over the three years from 2018 to 2020, we predict total new supply of 5.8 million sq metres (62.4 million sq ft), a figure which exceeds Grade A office stock at end-2017 of 5.1 million sq metres (55.4 million sq ft). Looking forward from the end of H1 2018, we expect the total new supply in core areas to reach over 6.0 million sq metres (65.0 million sq ft).

About half of the new supply is scheduled to be in the Qianhai district (see table overleaf). Shenzhen's office vacancy rate stood at 13.6% at end-H1 2018. We expect vacancy to rise to a peak of nearly 30% by end-2019 due to heavy new supply in Qianhai, but to fall back to around 14% by end-2022.

But strong demand can absorb the new stock

The heavy new supply of office stock should ensure that ample space is available for technology companies and other tenants to occupy. However, we are not especially concerned about a supply glut. This is because firm economic growth continues to drive market demand. Over the next three years, we forecast that net absorption in the Shenzhen market will exceed 1.0 million sq metres (11.1 million sq feet) annually.

We predict that city average rent will rise by 8% in 2018, followed by a downward adjustment of 4% in 2019 due to the heavy new supply in Qianhai. However, we expect to see positive rental growth in Futian and Nanshan. The city average rent should pick up in 2020.

Shenzhen in our scoring

Shenzhen comes third overall in our ranking, with a score of 61%. Despite the city's strong-near term economic growth prospects, the city does not score very highly under socio-economic considerations. This is mainly due to a relatively low score under talent, reflecting the paucity of famous

universities in Shenzhen as recognised in international surveys. However, in this case, we believe that external sources probably do not do justice to the broad spread of practical technological expertise in Shenzhen.

Shenzhen does not score very highly on human factors either, at least in comparison to the rest of Asia rather than the other large Chinese cities. However, Shenzhen excels on property factors, coming second overall in this factor group after Bangalore. This position reflects moderate employer costs and the city's very strong ranking on considerations such as availability of office stock and flexible workspace, and planned new supply.

New supply in Shenzhen

- > **Qianhai:** Despite the fact that Qianhai will have the largest new supply in Shenzhen, exceeding 2.0 million sq metres (21.5 million sq feet), a large portion of the new buildings is intended for self-use, specifically as headquarters for large corporations, leaving limited new supply for leasing. As the planned future CBD of Shenzhen, we expect rents to pick up gradually once new infrastructure projects are completed.
- > **Luohu:** As Shenzhen's earliest developed district, Luohu is currently undergoing a large scale urban renewal. For example, the Caiwuwei area has planned three super skyscrapers with a building height of over 600 metres. We expect a large amount of new supply over the next five to ten years, which should drive the demand for quality office space by tenants in Luohu, as well as rental growth.

Districts of Shenzhen



Source: Colliers International

60.3%

Human
9.9%Property
18.5%Socio-
economic
31.9%

Beijing

Beijing in our scoring

Beijing scores 60% in our list, and ranks fourth overall. Beijing scores highly on economic scale and growth potential, and is respected as a source of talent. Staff costs are moderate even if CBD rents are the highest in China. The city scores less well on measures of human aspiration, partly due to relatively low scores on quality of life and environmental criteria. Nevertheless, we are optimistic about prospects for Beijing, and believe that the city is especially well-placed to strengthen its position as a leading centre in the field of artificial intelligence (AI).

Beijing as a source of talent

We note that the technology occupiers in our “Tech Trends” report of December 2017 considered Beijing/North China to be the single greatest source of talent within Asia. With several highly reputed universities (especially Peking University and Tsinghua University) and a well-known technology hub in Zhongguancun, there is no doubt that Beijing is a major centre of technical and academic excellence. Based on The Times Higher Education World University Rankings, we believe that Beijing ranks in first place among mainland Chinese cities by quality of education, albeit behind Singapore, Hong Kong and Seoul.

Beijing as an AI hub

We expect Beijing’s importance as a technology centre to grow further, and believe that the city will continue to attract new companies and investment capital. We consider that Beijing is especially well-placed to strengthen its position as a leading centre in the field of artificial intelligence (AI). In terms of enterprises and capital, according to public information, there were almost 400 AI enterprises in Beijing by end-September 2017, the highest level in China.

We list below some recent developments in Beijing’s pursuit of growth in AI:

- > **July 2017:** China’s State Council issues the “Planning for the Development of the New Generation of AI”.
- > **December 2017:** Beijing’s municipal government releases the “Guideline for Accelerating the Development of Sci-tech Renovation and Fostering the AI Industry”.
- > **First nine months of 2017:** The value of investment in AI Beijing ranked top in China. Investment in a total of 51 AI-related projects over that period reached RMB10.24 billion (USD1.63 billion), accounting for about one-half of the aggregate level for China.
- > **January 2018:** Beijing’s Mentougou District announces that it will build the Zhongguancun Artificial Intelligence Science Park (ZAISP) in Mentougou New Town within the next three to five years. Although ZAISP is not the first AI science park in China, the advantages of Beijing in talent, technology and enterprise should help the city lead China’s AI industry
- > **August 2018:** The total number of robot-related companies in the Beijing Economic Development Area reaches 153, compared to 35 three years ago

The map overleaf shows the distribution of AI enterprises in Beijing. It is easy to see that there is a significant concentration in Haidian District (海淀区).

Areas of AI concentration in Beijing



No.	Existing Areas
1	Z-Park I-M-Way
2	AI National co-working space in the Peking University Science Park
3	Yichuang Robot Creative Park
No.	Future Areas
4	Zhongguancun Science City Zhongguancun Avenue area
5	Zhongguancun Science Park AI Park
6	Future Science City
7	Zhongguancun Science City Beijing Road area
8	Huairou Science City

Source: Colliers International Research, North China

AI concentration in Beijing

Currently, the sub-districts with a particular concentration of AI companies are the Z-Park I-M-Way in Haidian District and Yichuang Robot Creative Park in the Beijing Economic and Technological Development Zone (BDA). There is also an AI National co-working space in the Peking University Science Park.

- > **Z-Park I-M-Way** was set-up by Haidian District in 2016, with the aim of establishing a new type of innovative start-up street with the theme of intelligence manufacturing. The street starts from the east gate of Tsinghua University in the north and ends at the Chengfu Road in the south. The total length is 380 metres which includes the universities and institutions such as Tsinghua University, Peking University, Beihang University and Chinese Academy of Sciences. 46 enterprises are concentrated in the street with a total added value of more than RMB100 billion (USD15.9 billion).
- > **Yichuang Robot Creative Park** in BDA was set up in 2015; it was renovated from an original factory with a total GFA of around 87,000 sq metres (936,460 sq feet). The park is positioned as the R&D centre of Beijing's robot industry. As of now, we understand that over 30 enterprises have entered the park with a total commitment rate of about 80%.

59.3%

Human
13.1%Property
19.2%Socio-
economic
27.0%

Hyderabad

Hyderabad in our scoring

Hyderabad comes seventh in our ranking with a score of 59%. We believe that the city has the potential to rise up the ranking in coming years. Like all Indian cities, Hyderabad scores highly on long-run growth potential, although it scores less well on other socio-economic factors and does not yet match Bangalore as a source of talent. Office stock currently stands at only 40% of the level of Bangalore, but development is proceeding apace, with total stock set to increase by 60% by 2021 by our estimate. The fact that technological development is focused in one district, HITEC City, makes planning in Hyderabad relatively easy. Tax rates and cost of living are low, and Hyderabad scores better than most other Indian cities on other human factors such as quality of living, air pollution, and traffic levels.

Profile of Hyderabad

Hyderabad has developed rapidly since it was originally earmarked as a major IT centre by the Indian government. Development has accelerated since political agreement was reached in 2014 on the division of the old province of Andhra Pradesh into new Andhra Pradesh and Telangana: Hyderabad will serve as capital city of both provinces for no more than ten years.

By Colliers' estimate, as of end-H1 2018, Bangalore has 141 million square feet (13.1 million square metres) of office space. With just over 56 million square feet (5.2 million square metres) of office space, Hyderabad is only about 40% of Bangalore's size. However, development is proceeding apace, with total stock set to increase by 33 million sq ft or 60% by 2021 by our estimate. Whereas Bangalore is divided into many micromarkets, technology development in Hyderabad is concentrated in one district, HITEC City.

With about 1.0 million sq feet (0.09 million sq metres) of office leasing in Q2 2018, Hyderabad recorded 1.5 million sq feet (0.1 million sq metres) of gross absorption in H1 2018, representing a 38% dip from H1 2017. In our opinion, the considerable dip in office leasing is primarily view to the limited availability of Grade A office supply in the Secondary Business District (SBD), the city's favourite market, where the vacancy rate is as low as 3.0%.

Nonetheless, about 1.1 million sq feet (84,000 sq metres) of space was pre-committed in Q2 2018, indicating healthy demand for Grade A office space.

Various technology and consulting companies such as JP Morgan Chase, PwC, Shure and S&P Infotech made pre-commitments to space for expansion in projects under construction in the SBD such as Salarpuria Sattva Knowledge City and RMZ Skyview Office Park.

In Q2 2018, office demand remained concentrated in the SBD micromarket. Due to the expansion of technology companies such as Amazon, Conduent, UST Global and Core compete, the technology sector accounted for 62% of gross absorption. This was followed by flexible workspace operators, accounting for 31% of gross absorption. In our opinion, increasing pre-commitments by technology occupiers and the continuing rise of flexible workspaces should be the key trends driving the market in H2 2018.

Infrastructure development

Hyderabad is going through an infrastructure makeover with the government's Strategic Road Development Plan (SRDP) calling for the construction of underpasses, flyovers and cable bridges, as well as street and water supply improvement initiatives in CBD locations. In our opinion, such initiatives are likely to reduce the overburden on the available infrastructure further in SBD, CBD and Off CBD micromarkets.

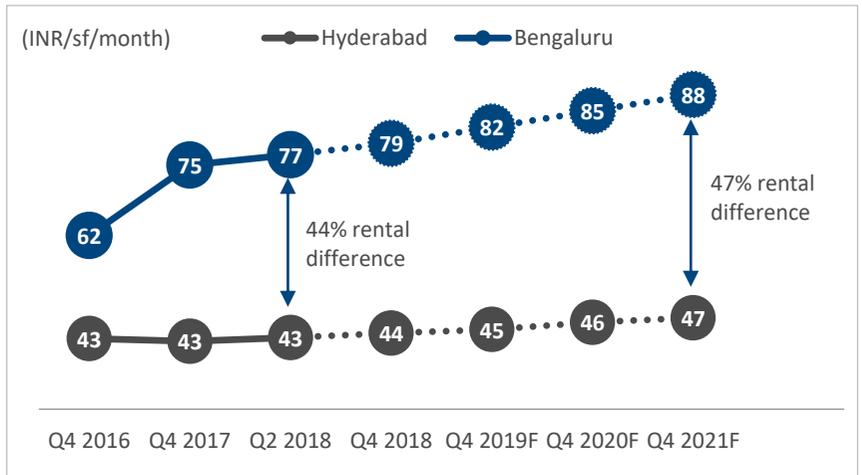
The state government is in progress in setting up one of the world's biggest 'Pharma City' clusters over an area of 19,000 acres (76.8 million sq metres) in Mucherla. Recently, the Swiss firm Ferring Pharmaceuticals has also announced investments of about INR1,700 crores (USD250 million) in Genome Valley, Hyderabad. We expect the aforementioned investments in the pharmaceuticals sector to provide further support to office demand.

Comparison – Bengaluru vs Hyderabad

Parameter	Bengaluru	Hyderabad
Total stock	141.3 msf	56.4 msf
Gross absorption (Cumulative 2016–17)	28.1 msf	11.0 msf
% share of absorption by IT-ITeS occupiers (Cumulative 2016–17)	59%	81%
Upcoming supply (2018–2021)	23.0 msf	33.0 msf
Overall vacancy rate (Q2 2018)	10%	6%

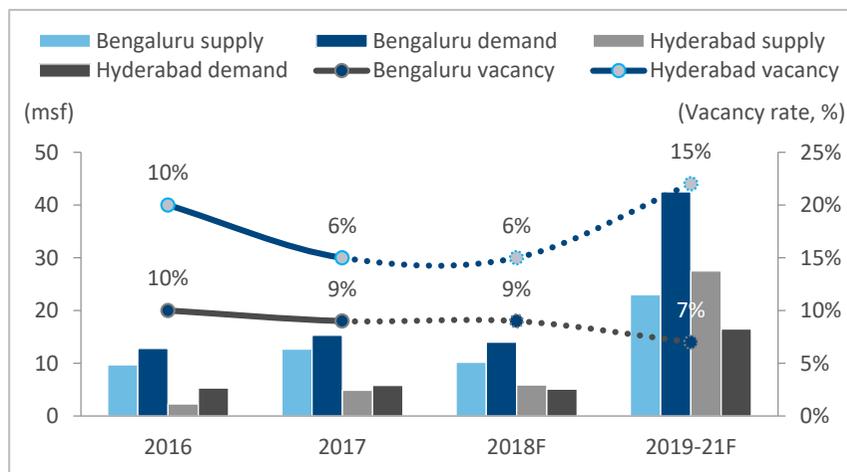
Note: 1) This table is intentionally repeated from the table on page 7 above. 2) Only Grade A office spaces are considered; IT-ITeS – Information Technology and Information Technology enabled Services; msf – million square feet. Source: Colliers International India Research

Rental Trend in INR/sf/month (Hyderabad vs Bengaluru)



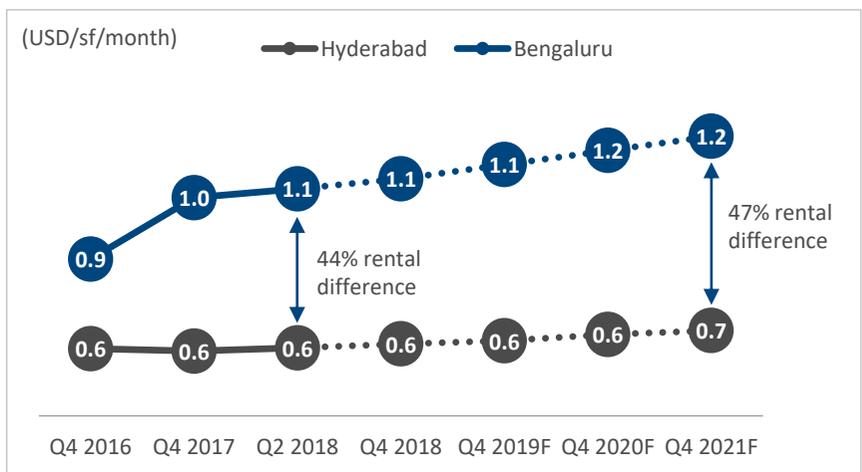
Source: Colliers International India Research

Comparison – Bengaluru vs Hyderabad



Source: Colliers International India Research
 Note: Only Grade A office spaces are considered;
 Forecasted vacancies are for Q4 2018 and Q4 2021 respectively

Rental Trend in USD/sf/month (Hyderabad vs Bengaluru)



Source: Colliers International India Research
 Note: Only Grade A office spaces are considered;
 USD = INR 71.90 (US Dollar rate as on 7th September 2018)

59.1%

Human
12.5%Property
14.2%Socio-
economic
32.4%

Hong Kong

Hong Kong in our scoring

Hong Kong is not usually considered to be a leading technology centre, and based on Colliers' property data at present it is not. As of end-H1 2018, we estimate that technology occupiers accounted for under 6% of Grade A office space in the city. This is one of the lowest proportions in Asia.

However, Hong Kong achieves a respectable score of 59.1 in our ranking, and comes in eighth place overall. Hong Kong comes in third place in terms of socio-economic factors after Singapore and Bangalore, due principally to high scores on employment considerations (specifically, political stability, ease of doing business, corporate tax rate and city infrastructure) and on availability of talent (reflecting high rankings for Hong Kong's universities).

In terms of property factors, Hong Kong scores poorly. Employer costs are high, reflecting high average disposable income per head (and therefore elevated average wages) and the world's highest rents for CBD office space. Low scores on these measures outweigh better scores on various metrics in the sub-category of office accommodation, e.g. availability of flexible workspace and Hong Kong's position on the innovation city index included in our criteria.

In terms of human factors, Hong Kong scores 12.5% out of a maximum of 13.4%. However, several cities rank just above it including most other large developed cities (Singapore, Seoul, Taipei and Tokyo all score well on aspirational measures) and emerging cities such as Hyderabad and Bangalore (in their case due to low living costs).

Could Hong Kong surprise as a technology centre?

We are not yet prepared to recommend Hong Kong as a top location for technology occupiers. However, we see several reasons why Hong Kong's position as a technology centre has the potential to improve sharply:

- > **Proximity to South China.** Hong Kong is a Special Administrative Region (SAR) of China, and lies just across the border from Shenzhen, which is China's technology capital. Greater integration of the cities in the Greater Bay Area may well drive growth in technology in Hong Kong too. In this context, it is worth adding that the central government of China has recently targeted Hong Kong as an international innovation centre. In

consequence, academics in Hong Kong may now apply to the central government as well as the SAR government for funding for research.

- > **Technology groups expanding in the city.** Over the past couple of years, leading technology and social media groups have expanded rapidly in Hong Kong. Several examples follow:
 - **Facebook**, one of the world's best-known social networks, which is currently leasing office space at Swire's One Island East building in Quarry Bay, will expand in the One Taikoo Place building and take up about 110,000 sq feet (10,220 sq metres) of space in 2018¹
 - **Alibaba**, the huge Chinese e-commerce enterprise, had occupied 27,000 sq feet (2,510 sq metres) at Times Square in Causeway Bay since 2011. In 2017, it expanded by leasing an additional 91,000 sq feet (8,455 sq metres) at Times Square Tower 1 in Causeway Bay². The South China Morning Post (SCMP), which Alibaba acquired in 2015 is also located in this building
 - **BitMEX**, a fintech company and trading platform for cryptocurrencies, has recently rented the entire 45th floor of the Cheung Kong Center in Central, an area of 20,000 sq feet (1,860 sq metres), for HKD225 (USD28.8) per sq foot per month³, making this floor the most expensive office in Hong Kong
- > **Fintech gathering pace.** According to KPMG's report "The Pulse of Fintech 2018" (31 July 2018), Asia's fintech investment surged from USD5.4 billion in 2017 to USD16.8 billion in H1 2018 (although this figure was swollen by around USD14 billion of fund raising by the Chinese online payments group Ant Financial). In Hong Kong, in addition to an increasing number of fintech companies which can afford office rents in the CBD and fringe CBDs, international banks are hiring more technology-based talent, which should increase office demand across all submarkets. Many large banks that already have offices in the CBD are considering decentralised locations for their innovation and technology divisions, while others are using flexible workspace; notably, HSBC established its innovative technology teams in WeWork centres in 2016.

Recently, it has been reported that, as part of its global technology budget of USD10.8 billion for 2018, **JP Morgan** plans to expand its Hong Kong-based tech workforce by 20% to prepare for the launch of its new Chinese securities venture. The bank has pre-leased about 225,000 sq

feet (20,905 sq metres) of office space at The Quayside in Kowloon Bay, a building scheduled for completion in 2019. As part of the move, JP Morgan plans to hire “top-tier tech talent” from Hong Kong and China with skills in digital, AI, mobile, big data and machine learning.⁴

- **HKSTP nurturing new talent.** The Hong Kong Science & Technology Park (HKTSP) is a government-promoted project to build on Hong Kong’s perceived strengths in five technology clusters (biomedical technology, electronics, green technology, information and communication, and material and precision engineering), and to facilitate the translation of R&D achievements into practical solutions for three major application platforms, namely Smart City, healthy ageing and robotics. The HKTSP has its principal site at the Science Park in Shatin, New Territories, which focuses on R&D; in addition, it manages the Innocentre in Kowloon Tong, which focuses on brand design and marketing.

The HKTSP claims to be fostering over 680 technology companies at present, to provide around 3.5 million sq feet (325,280 sq metres) of laboratory and office space, and to have raised HKD1.2 billion (USD155 million) in direct investment in fiscal year 2017/18. The HKTSP is complementing the earlier-established (and smaller) Cyberport as a hub for nurturing new technology businesses. The HKTSP’s role may be further enhanced if the planned Hong Kong/Shenzhen Innovation Park at Lok Ma Chau goes ahead.

¹ Source: Swire Properties (see <https://www.taikooplace.com/en/media/2018/180201-one-taikoo-place-tops-out-with-over-half-of-office-space-pre-leased.aspx>, 1 Feb 2018); Colliers International

² Source: Wharf Holdings (see http://www.wharfholdings.com/download_eng/ar2011/09%20Times%20Square%20E.pdf); Colliers International

³ Source: SCMP (see <https://www.scmp.com/business/article/2160878/us600000-monthly-office-rent-breeze-digital-currency-exchange>, 22 Aug 2018); Colliers International

⁴ Source: SCMP (see <https://www.scmp.com/business/companies/article/2151333/jp-morgan-expand-hong-kong-based-tech-hires-support-landmark>), 19 June 2018; other reports

RECAPITULATION – “TECH TRENDS IN ASIA”

Over H2 2017 Colliers' Occupier Services and Research teams held detailed interviews with the Asian operations of twelve large technology companies domiciled in the US, Europe and Asia. These companies spanned the gamut of technology sub-sectors from hardware manufacturing through software and services to social media. Our interviews covered present and future real estate strategy, but paid particular attention to the question of how the need to acquire and retain talent shapes real estate location decisions.

We presented our conclusions in our “Tech Trends in Asia” report, and believe that they are still largely valid. In our view, four terms describe an appropriate real estate strategy for technology occupiers in Asia: talent, Chindia, CBD, artificial intelligence (AI). We summarise these points at right.

Talent

Acquisition of talent is the greatest challenge faced by Asian technology companies, ranking far ahead of other constraints. The occupiers in our study had particular respect for Beijing/North China as a source of talent, together with Shanghai/East China and India (notably Bangalore). Talent is getting younger, with millennials the top or joint top employee age group for two-thirds of the companies.

Chindia

As markets, China and India offer the highest growth potential over ten years. Moreover, it is vital for technology groups to have exposure to China to understand the developments in a dynamic market leading Asia in e-commerce, mobile internet and AI. Within China, Shanghai and Beijing (or, on a medium-term view, Chengdu) offer alternatives as locations for technology companies to currently dominant South China. In India, Hyderabad is emerging as a strong alternative to Bangalore with lower rents.

CBD

Technology groups need to move towards the CBD or CBD fringe to find and retain talent in R&D and sales & marketing. Business parks on city edges are an option for smaller or start-up groups. Different economic criteria apply to manufacturing units, for which location outside cities makes sense. However, technology occupiers attempting to concentrate all their operations in out-of-town campus sites look unlikely to attract all the high-skilled staff needed for the key roles of the future.

Artificial intelligence

Technology companies should harness AI to drive growth and boost returns. The convergence of AI, the Internet of Things and alternative workplace solutions (with agile working the best design for many technology groups) looks set to transform the office, making it more collaborative, greener and healthier. This will help in acquiring and retaining human talent.

SCORING METHODOLOGY

Our “Top Locations in Asia” research examines the attributes of cities under three headings: socio-economic factors, property factors and human factors. These three factor groups are broken down into seven sub-categories (economic output, employment considerations, workforce orientation, availability of talent, employer office costs, office accommodation and employee aspirational metrics), which in turn include nearly 50 measures relevant to choice of location. We assign a score on each measure and combine them to a total score out of 100. We rank the cities on this basis.

A brief explanation of the key factors is provided below.

Socio-economic factors

Economic output

Economic output describes the aggregated gross value added (GVA) produced in each city. This is a similar concept to gross domestic product (GDP). We have emphasised the estimated long-term growth rate of GVA for each city, the percentage of GVA in services, and the importance of each city to the national or regional economy. Cities in countries with high long-term growth rates, with a sizable services sector, and whose economies are important on a national scale, will score highly.

Employment considerations

This sub-category includes a number of considerations other than pure economic potential relevant to the decision to do business in a city. These include the political stability of the country, operating conditions for enterprises (e.g. general ease of doing business and corporate tax rate), and the quality of city infrastructure. We have also included English language proficiency, which is important in the technology sector.

Workforce orientation

This sub-category refers to the demographic profile of the country, and the composition of the workforce in the leading cities. We have examined the proportion of the population aged under 30 as a measure of supply of staff over the long run. In addition, we have examined the proportion of each city’s workforce represented by the Communications and

Transport sector (as a proxy for Technology), the Financial and Business Services, and the Consumer Services and Public Services sectors. Finally, we have examined the productivity of staff in those sectors.

Oxford Economics is our principal source of data for the various criteria included within the three sub-categories above. Where necessary, we have used other respected public sources such as the World Bank.

Availability of talent

Availability of talent refers principally to the quality of higher educational facilities in the city. We have examined the ranking of top universities, the degree to which higher educational facilities may be considered to have an international outlook, and the quality of research institutions.

Our principal source of data on availability of talent is the Times Higher Education World University Rankings.

Property factors

Employer costs

This sub-category refers to the overall costs for an occupier of operating a business in the city. The most important of these costs are average wages per employee (for which we have used disposable income per capita as a proxy) and average prime office rent in the CBD. The higher the employer costs, the lower the city’s score.

Office accommodation

This heading covers various measures of the quality and availability of office stock in a city. These include current Grade A office stock and office vacancy, and planned supply over the next three years. We also examine availability of flexible workspace and the gap in rents between the CBD and cheaper districts. Finally, we examine certain less tangible measures of the quality of the workplace such as wellness and sustainability.

For most of the criteria included under employer office costs and office accommodation, we have assigned a score based on Colliers’ own research, backed up where necessary by external sources.

Human factors

Employee aspirational metrics

This sub-category covers several measures of importance to occupiers' staff, most importantly personal tax rate and cost of living and but also measures of the quality of living such as a safety index and pollution levels. Cities with a low cost of living where people feel safe and are not worried about their health will score highly.

We have used various well-known public sources including KPMG, Mercer and the World Health Organisation for data inputs relevant to employee aspirational factors.

Weightings

Naturally, a key factor governing the scores achieved by the 16 cities in our study is the weightings that we assign to the three principal factor groups, and within those groups to the various sub-categories. For the technology sector, we have selected the following weightings:

- > Socio-economic factors, 50%
- > Property factors, 30%
- > Human factors, 20%

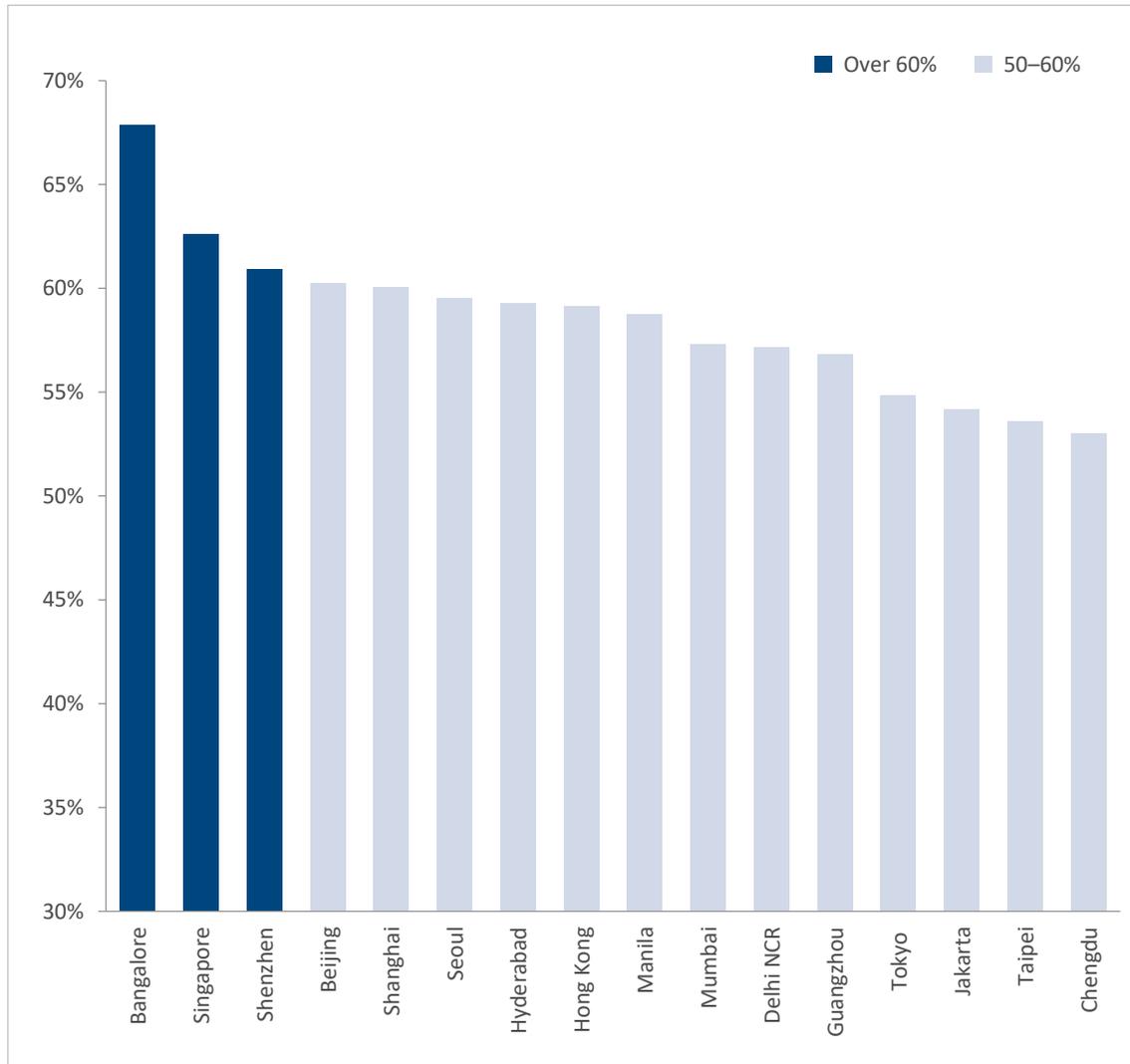
Our choice of weightings will inevitably be open to question. However, as noted earlier our "Tech Trends in Asia" work suggested that technology groups regard acquisition of talent as their chief challenge, and that they are attracted by high-growth markets. Accordingly, under socio-economic factors, we have assigned a 15% weighting to the sub-category of economic output (which in turn is dominated by long-run GVA growth rates, especially in services), and a 10% weighting to availability of talent as narrowly defined by scores on university rankings. If availability of talent is defined more broadly to include the various measures that we assess under the sub-category of workforce orientation, then it has a total weighting of 22%.

Weightings of three factor groups and seven sub-categories in "Top Locations in Asia (Technology)" research

	Factors	Weighting
1.0	Socio-economic Factors	50%
	1.1 Economic Output	15%
	1.2 Employment Considerations	13%
	1.3 Workforce Orientation	12%
	1.4 Availability of Talent	10%
2.0	Property Factors	30%
	2.1 Employer Costs	15%
	2.2 Office Accommodation	15%
3.0	Human Factors	20%
	3.1 Employee Aspirational	20%
	Total	100%

Source: Colliers International

Overall score: Overall score: three cities on 61% or higher



Source: Colliers International, based on data inputs from numerous sources

SUMMARY OF OVERALL SCORES

Three cities achieve a combined score of 61% or higher in our ranking: Bangalore on 68%, Singapore on 63% and Shenzhen on 61%. These cities are the clear winners, and in our view they rank as the top locations for technology sector occupiers in Asia.

As the chart at left makes clear, it would be wrong to ascribe excessive importance to the rankings of the 16 cities in our study. Thirteen cities score between 60% and 50%, and none scores below 50%.

Despite good scores on human aspirational factors, dull long-run growth prospects and a poor demographic profile hold developed cities like Tokyo and Taipei. However, Seoul scores more highly due to modest employer costs and good university and research rankings.

In general, Indian cities and South East Asian emerging cities like Jakarta benefit from high economic growth and low employment and living costs, but achieve poor scores on employment considerations and human aspirational metrics. Hyderabad scores better than most other emerging cities on human factors such as quality of living, air pollution, and traffic levels.

SCORING AND RANKING

For each city, we determine a percentage score on each of the nearly 50 separate measures that we examine in this report. We calculate percentage with reference to (a) either an absolute value such as GVA in the services sector or total office stock, or the position that the city occupies between lowest and highest value on each measure, and (b) the weighting that we assign to that measure. We then add up the percentages to calculate a total percentage score for each city.

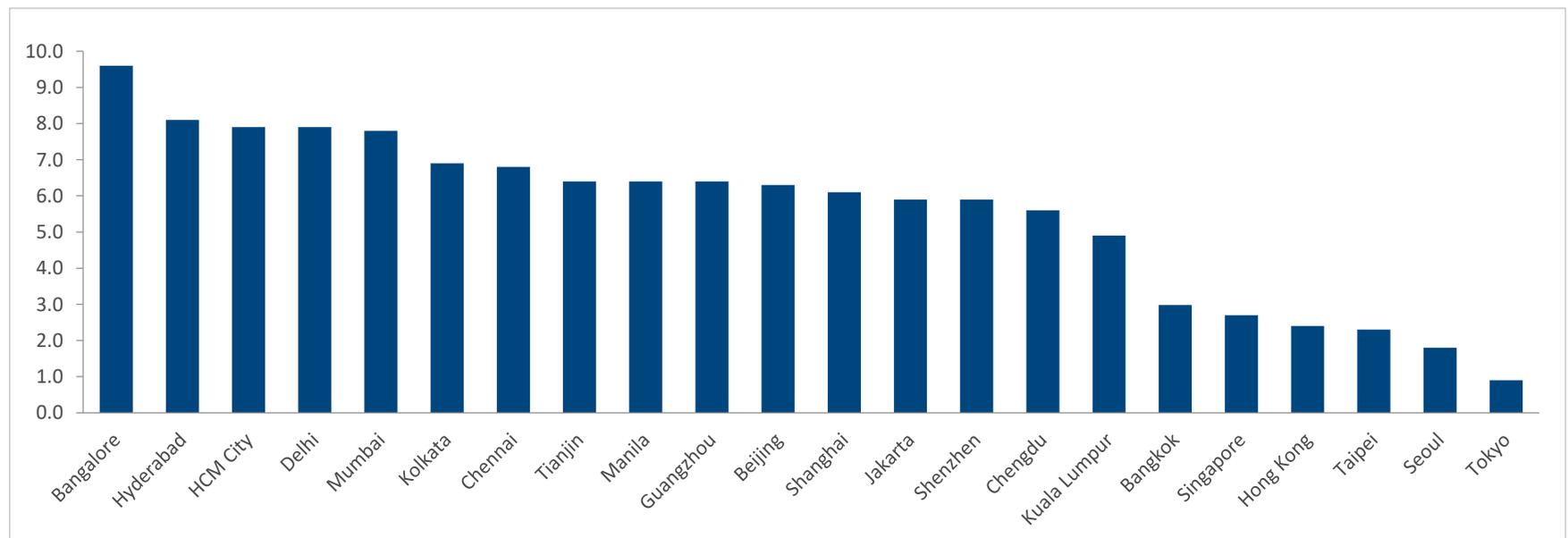
In addition, we calculate each city's rank out of 16 for each of the three factor groups, i.e. socio-economic, property and human factors, together of course with each city's overall ranking out of 16.

We summarise the scoring and ranking below.

Socio-economic factors

The scores range between 26.2% and 35.6%, out of a maximum possible score of 50.0%. [Bangalore's](#) no.2 position, with a score of 33.1%, principally reflects the fact that it ranks at the top of Oxford Economics' forecasts of average annual real GDP growth among Asian cities over the next five years, on 9.6%; this in turn feeds through into the highest estimated GVA growth in the services sector. Out of the seven fastest-growing big Asian cities over the period 2018–2022, Oxford Economics believes that six will be in India, with Ho Chi Minh City the only exception. However, Bangalore is the clear leader among the Indian cities, with Hyderabad some way behind with estimated average annual real GDP growth of 8.1%. In contrast to the Indian cities, Oxford Economics notes that growth in the Tier 1 Chinese cities has clearly started to slow.*

Estimated real GDP growth 2018–2022 (%)



Source: Oxford Economics, March 2018

*See "Asia Pacific Cities & Regions Outlook" by Oxford Economics (May 2018)

[Singapore](#) just beats Bangalore to rank first in terms of socio-economic factors in our ranking, with a score of 35.6%. The city only ranks in the middle by long-run growth prospects or other criteria in the sub-category of economic output. Singapore's top score on socio-economic factors therefore principally reflects the country's strong reputation as a source of talent; it ranks highest in Asia in the Times Higher Education World University Rankings assessment of universities, research and teaching capabilities.

At the other end of the scale, the large developed cities of [Taipei](#) and [Tokyo](#) achieve relatively low scores of 27–28%. These scores partly reflect limited long-run growth prospects and unfavourable demographic profiles, notwithstanding current high economic scale; they also reflect relatively high employer costs. Such concerns apply in particular to Tokyo, which has the lowest proportion of the population ages under 30 (27%) and the highest average income per employee, reflecting high overall labour costs. [Seoul](#) scores more highly due to modest employer costs and good university and research rankings.

Score and rank on socio-economic factors						
Metrics	Economic Output	Employer Factors	Workforce	Talent	Grand Total	Ranking
Singapore	5.6%	13.0%	7.0%	10.0%	35.6%	1
Bangalore	10.6%	6.9%	9.9%	5.8%	33.1%	2
Hong Kong	5.0%	12.6%	6.4%	8.5%	32.4%	3
Beijing	7.8%	9.4%	8.3%	6.3%	31.9%	4
Seoul	5.8%	11.3%	6.8%	6.7%	30.6%	5
Shanghai	8.0%	9.2%	8.1%	5.2%	30.5%	6
Manila	10.2%	7.5%	9.3%	2.9%	29.9%	7
Mumbai	9.1%	6.9%	9.0%	4.8%	29.9%	8
Guangzhou	8.1%	9.3%	8.1%	3.7%	29.3%	9
Shenzhen	7.6%	9.4%	8.2%	4.0%	29.2%	10
Delhi NCR	9.2%	7.2%	8.8%	3.1%	28.3%	11
Jakarta	8.9%	8.1%	8.1%	3.1%	28.2%	12
Tokyo	5.4%	10.6%	6.6%	5.0%	27.7%	13
Taipei	4.5%	11.6%	6.7%	4.6%	27.4%	14
Hyderabad	9.2%	7.0%	8.2%	2.5%	27.0%	15
Chengdu	7.5%	8.7%	7.4%	2.6%	26.2%	16
Measure	15.0%	13.0%	12.0%	10.0%	50.0%	–
Max	10.6%	13.0%	9.9%	10.0%	35.6%	–
Min	4.5%	6.9%	6.4%	2.5%	26.2%	–

Source: Colliers International, based on underlying data from numerous sources

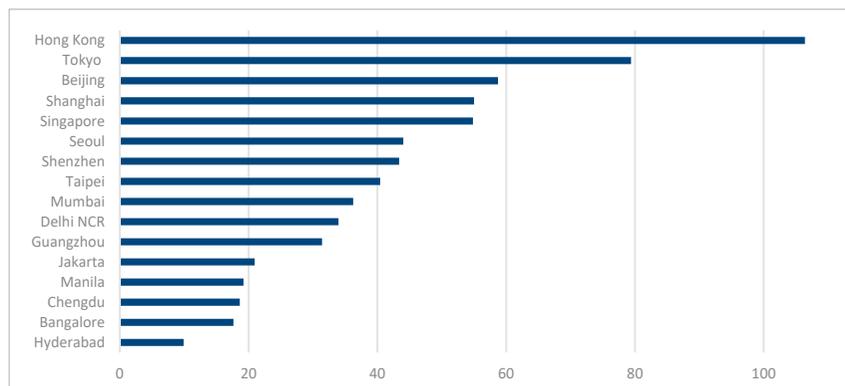
Property factors

The scores range between 13.3% and 22.2%, out of a maximum possible score of 30.0%. The large Indian cities (especially Bangalore and Hyderabad) score highly on employer costs due to low staff costs and the lowest CBD rents in Asia, and so Bangalore comes out as no.1 overall in terms of property factors. However, the Indian cities score less well on the various measures of office accommodation such as quality of office stock, volume of new supply and availability of flexible workspace.

The Tier 1 Chinese cities offer lower rents than very high-rent cities such as Hong Kong and Tokyo, but score well above the Indian cities on the office accommodation measures. Shenzhen comes out as no.2 overall, partly reflecting the very substantial new supply of high-quality office space planned in the city (in excess of existing office stock) over the next few years.

At the other end of the scale, the large developed cities such as Taipei, Tokyo and Seoul score relatively poorly. In the case of Tokyo, this reflects high wages (as shown in high income per capita) and high rents. While Taipei and Seoul are cheaper locations to run businesses, they do not score well on the various measures of office accommodation. Hong Kong also scores poorly overall due to high employer costs (reflecting Asia's and the world's highest office rents), although it scores better on employment considerations such as ease of doing business and corporate tax rate.

Asian prime office rents H1 2018 (USD per sq metre per month)



Source: Colliers International

Score and rank on property factors

Metrics	Employer Costs	Office Accommodation	Grand Total	Ranking
Bangalore	14.6%	7.6%	22.2%	1
Shenzhen	12.5%	9.1%	21.6%	2
Delhi NCR	13.7%	7.4%	21.1%	3
Mumbai	13.6%	6.0%	19.7%	4
Shanghai	11.8%	7.5%	19.4%	5
Hyderabad	15.0%	4.2%	19.2%	6
Guangzhou	13.2%	5.9%	19.1%	7
Manila	14.5%	4.3%	18.8%	8
Beijing	11.6%	6.9%	18.5%	9
Chengdu	14.2%	4.1%	18.4%	10
Seoul	10.6%	5.5%	16.1%	11
Jakarta	12.0%	3.8%	15.8%	12
Tokyo	5.2%	9.4%	14.6%	13
Hong Kong	6.0%	8.2%	14.2%	14
Singapore	8.3%	5.3%	13.6%	15
Taipei	10.4%	2.9%	13.3%	16
Measure	15.0%	15.0%	30.0%	–
Max	15.0%	9.4%	22.2%	–
Min	5.2%	2.9%	13.3%	–

Source: Colliers International, based on underlying data from numerous sources

Human factors

The scores range between 7.7% and 13.4%, out of a maximum possible score of 20.0%. The top-ranking city is Singapore, reflecting a modest personal tax rate and a very high position on measures such as city safety, quality of living, air pollution and traffic volume. Perhaps surprisingly, Hyderabad and Bangalore come in second and fifth place respectively, due mainly to low personal tax rates and a low cost of living.

The large developed cities such as Tokyo, Taipei, Seoul and Hong Kong are grouped together in the middle on 12–13% in terms of human factors. They held down by high personal tax rates (except Hong Kong) and living costs, but score much better on aspirational measures such as quality of life and air pollution, and on the High Tech City index that we include in this category.

The Tier 1 Chinese cities are held down by high personal tax rates in China, and to a lesser extent by quality of life and environmental measures. South East Asian developing cities such as Manila and Jakarta are held down by low scores on environmental measures such as air pollution and traffic volume.

Score and rank on human factors

Metrics	Employer Aspirational	Grand Total	Ranking
Singapore	13.4%	13.4%	1
Hyderabad	13.1%	13.1%	2
Taipei	13.0%	13.0%	3
Seoul	12.9%	12.9%	4
Bangalore	12.6%	12.6%	5
Tokyo	12.6%	12.6%	6
Hong Kong	12.5%	12.5%	7
Shanghai	10.2%	10.2%	8
Jakarta	10.2%	10.2%	9
Manila	10.1%	10.1%	10
Shenzhen	10.1%	10.1%	11
Beijing	9.9%	9.9%	12
Chengdu	8.4%	8.4%	13
Guangzhou	8.4%	8.4%	14
Mumbai	7.8%	7.8%	15
Delhi NCR	7.7%	7.7%	16
Measure	20.0%	20.0%	–
MAX	13.4%	13.4%	–
MIN	7.7%	7.7%	–

Source: Colliers International, based on underlying data from numerous sources

Overall score and ranking

The overall scores range between 67.9% at the high end and 53.0% at the low end, with [Bangalore](#) coming in first place. This reflects Bangalore's high score on socio-economic factors (due to high expected long-run economic growth), on office accommodation (due to ample office stock), and employer costs (due to low staff costs and low rents), as well as a reasonable score on human factors (due to low cost of living).

[Singapore](#) comes in second place with a combined score of 62.6%, reflecting its high score on socio-economic factors (due principally to its strong reputation as a source of talent) and human factors (Singapore leads the pack on most human aspirational measures). These considerations outweigh the city's lower ranking on property factors.

[Shenzhen](#) comes in third place overall, with a combined score of 60.9%. Perhaps this should come as little surprise for the city which on balance must rank as China's technology capital today. Shenzhen scores especially highly on property factors, partly reflecting the very substantial new supply of high-quality office space planned in the city over the next few years.

Overall score and ranking		
Metrics	Grand Total	Ranking
Bangalore	67.9%	1
Singapore	62.6%	2
Shenzhen	60.9%	3
Beijing	60.3%	4
Shanghai	60.1%	5
Seoul	59.5%	6
Hyderabad	59.3%	7
Hong Kong	59.1%	8
Manila	58.8%	9
Mumbai	57.3%	10
Delhi NCR	57.1%	11
Guangzhou	56.8%	12
Tokyo	54.8%	13
Jakarta	54.2%	14
Taipei	53.6%	15
Chengdu	53.0%	16
Measure	100.0%	–
MAX	67.9%	–
MIN	53.0%	–

Source: Colliers International, based on underlying data from numerous sources

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About Colliers International Group Inc.

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