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Membership

The Committee for Sydney is an independent think tank and champion for the whole of Sydney. With over 140 member organisations, we work on behalf of Sydney, not the interest of any industry or sector. If you would like to find out more about joining us, please contact Hannah Jamieson, Director of Engagement and Development on hannah@sydney.org.au.

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Foreword

Welcome to the fifth report in our annual Benchmarking Sydney series. This annual research gives us key insights into our city – where we're strong, where we need to work harder, and where we need to tell a different story to global audiences.

2020 has been a year unlike any other. The report clearly starts to show the twin impacts of COVID-19 and the 2019/20 bushfire season are seen in this year's benchmarking report with our scores in air quality and sustainability benchmarks taking a hit, and with growing uncertainty about the global economy. But Sydney's underlying strengths come through just as clearly – a strong economy underpinned by a diverse, well-educated community and strong trust in effective institutions.

The report also reminds us that we have work to do in a number of areas. Australia, and by extension Sydney, is being left behind on climate policy. This is an increasingly important part of global perceptions, spurred on by the bushfires and by the growing urgency of the problem.

Sydney's transport infrastructure is both a strength and a weakness. The investment and expansion of the network over the past decade puts Sydney in the top tier of global cities. But we are coming from a long way behind, and will need to keep making progress for many years to come.

At the Committee for Sydney, we strive to create a better Sydney that offers unparalleled opportunity and quality of life, for everyone. We think Sydney can be the best city in the world. Benchmarking comparisons help us understand where to focus our energy and ambitions.

Gabriel Metcalf

CEO

Committee for Sydney

Executive summary

Covid-19 may turn out to be the biggest shock and disruptor to the order of cities so far in this metropolitan century. Some cities will emerge with their reputations enhanced, while others may have years of work ahead to rebuild trust and confidence.

Cities across the world are trying to plot a course amid huge public health efforts, badly damaged job markets, and big questions about what city living will look like in the future. 2020 may be just the opening chapter in a story about the divergent paths the world's leading cities take.

Because of the success of Australia, and in particular New South Wales, in managing Covid-19 so far, Sydney may gain credit on the global stage as a major world city that embodies safety or resilience from many different kinds of risks. Sydney can stand out not just for its the strong public health system, but for more generally demonstrating government competence and social cohesion.

In these moments of turbulence and re-invention, international benchmarks of city performance and perception are a valuable tool for Sydney both to drive reputation, assess the new competitive context, and learn from other cities.

Over the past 12 months the benchmarks on the one hand already point to competitive edges for Sydney in terms of political stability, investor environment, public health, and resident wellbeing:

- Sydney continues to be rated and regarded as more stable and open for business than other cities.
- Its gateway role for Asia-Pacific is enhanced by protracted public health challenges faced in Europe and North America.
- Appetite for Sydney's perceived work life balance, health, safety, and natural environment appears relatively undimmed.
- Sydney remains a global top 10 city for international students, expat lifestyle, cross-border real estate investment, and all-round likeability.

On the other hand, there are clear risks that Sydney's growth path will be ill-adapted to the post-Covid world. The emerging comparative data points confirm that:

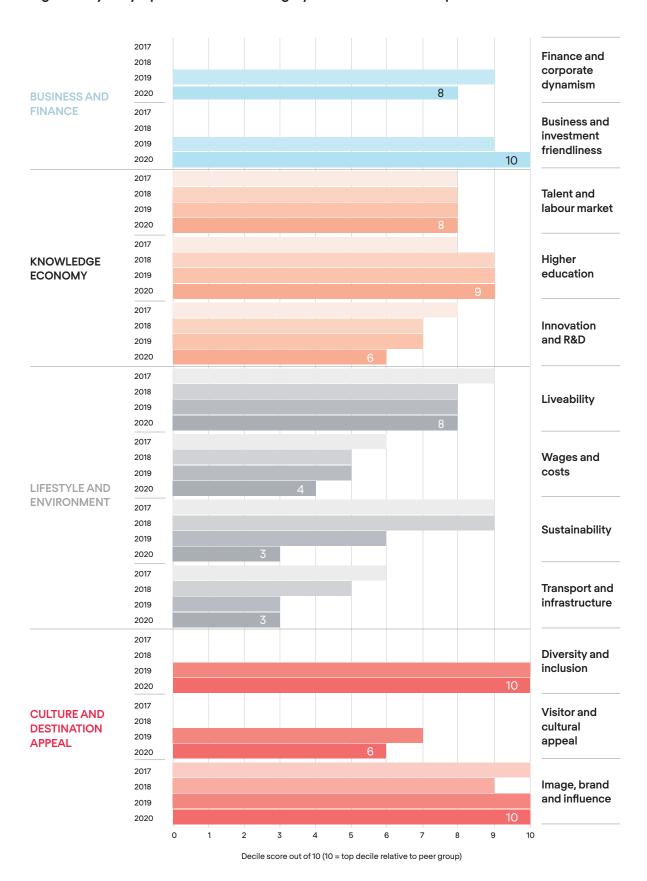
- Sydney's reliance on population and visitor-driven industries is threatened by a cycle of reduced global mobility and a potential long-term shift towards remote working, hybrid conferencing, distance learning, and tele-medicine.
- Our tech economy and digital infrastructure are underdeveloped, in a world shifting to digital and where Sydney's businesses and institutions will have to generate more of their revenue digitally.
- Air pollution spikes and slower action on climate change are a drag on performance and perception.
- Sydney's more car-dependent development model means there are more barriers to overcome than in other cities in order to establish an agile network of walkable, bike-able and amenity-rich neighbourhoods.

Amid the immediate shock and likely protracted recession, Covid-19 accelerates a number of trends that are likely to see competition with Sydney ultimately grow. Established cities will become more physically and digitally distributed, and smaller cities will compete for talent and opportunity. There will be more cities successfully hosting ecosystems of innovation and new industries; more that are viable visitor locations; and more that become popular with talent for their high quality of life and commitment to human health and planetary health.

The effects of Covid-19 are ushering in, as the benchmarks in 2020 confirm, a change in the world's notion of what liveability really means for cities. Parallel to the fun factor of cities and their appeal as cosmopolitan havens of leisure and consumption, liveability will now categorically be judged by the quality of air, the standard of public services, the walkability and absence of congestion, and the systems that underpin them.

So although Sydney has fared better than most in 2020, there is no time for complacency. The trends hastened by Covid-19 on jobs, digitisation, lifestyle and sustainability provide even clearer logic to accelerate with the vision for a Metropolis of Three Cities, upheld by continued progress in transport and digital capacity and the fostering of high quality job precincts. Above all Sydney can demonstrate why and how it is a leader and not a follower, a self-confident capital of the Southern Hemisphere and a partner with other leading cities on the path to resilience after Covid.

Figure 1: Sydney's performance ranking by decile relative to 33 peer cities



Note: this year, in response to the changing spread of benchmark measures, the analysis of financial services and global firms have been merged to form 'finance and corporate dynamism', and the analysis of investment attraction and business friendliness merged to form 'business and investment friendliness.' At the same time, 'culture and diversity' has been disaggregated so that measures of cultural appeal are included within a more broadly based 'visitor and cultural appeal', and measures of diversity are incorporated within 'diversity and inclusion.' For these 4 themes, standardised scores are only available in 2019 and 2020 (see section on 'The data underlying this report' below).



Why this report

Global benchmarks matter for talent attraction and in-bound foreign investment, which are essential to Sydney's economic health. They also matter to those within Sydney by reassuring that the city continues to take the steps to stay competitive as other places improve. But they also help Sydney learn from other cities. In the spirit of our continuing ambition to make Sydney the best city in the world, we want to know which cities are the global leaders on a given topic.

Some of the benchmarks in this report rely on objective measures such as GDP per capita or median housing costs; others measure how Sydney is perceived by various global audiences. We think both objective measures and measures of perception are important.

There are now well over 700 comparative city benchmark studies around the world, and this 'science' of city measurement continues to expand and innovate. Comparisons now consist of everything from inter-governmental reviews of public health, to talent index reports produced by business schools, to large social media perception surveys, reviews of performance and readiness in specific urban themes, multi-annual statistical databases, and much more.

The approach of this paper over the last 4 years has been to situate Sydney among a peer group of cities with similar characteristics. We review all of the comparative studies, not just a select few, in order to capture trends in how Sydney is both performing and perceived.

In the current moment, with so much global mobility on pause, benchmarks also exert influence and shape impressions. The news and visibility that surrounds successful, competent and aspirational cities also informs the choices of mobile talent, visitors and entrepreneurs in the next cycle.

Benchmarking Sydney in this current juncture allows us to survey Sydney's resilience, help spot new dynamics of competition, and build a clear picture of what the next sequence of priorities will need to be for Sydney to achieve its long-term goals and aspirations.

Explaining Sydney's change

Benchmarks are still catching up to the effects of Covid-19. About 50% of the benchmarks in this year's report were produced since global lockdown began in spring 2020, but many are based on data gathered before the pandemic hit. It typically takes 18-24 months for the full impacts of a major disruptor to become visible in comparative city data. Yet the first signs are emerging of how Covid-19 alters both the performance of cities and the priorities the world has when weighing up the merits of cities.

There are six potential reasons why a score changes from one year to the next:

- 1. Real, absolute improvements or declines
- 2. Relative speed of change compared to other cities that are also changing quickly
- 3. A shift in methods or focus
- 4. Data time-lags between real improvement and measured performance
- 5. Changing values or perceptions among surveyed audiences
- 6. Impacts relating to the Covid-19 pandemic















The data underlying this report

For each of the 12 topic areas, Sydney has been evaluated in multiple comparative benchmarks. In each category, Sydney is graded on a 10-point scale, based on its aggregate scores across all performance and perception benchmarks relative to the group of 33 peer cities. This is the same peer group as used in 2017, 2018 and 2019, for consistency and comparability. Decile position is based on position among the 33 city group, e.g. 3rd/33 = 1st Decile, 7th = 2nd Decile, 17th = 6th Decile, and so on.

The cities in Sydney's 'peer' group

Table 1: Sydney among 'peer' cities.

BarcelonaMadridSingaporeBerlinMelbourneStockholmBostonMiamiSydneyBrisbaneMilanTel AvivBrusselsMontréalTorontoBuenos AiresMunichVancouverChicagoOsakaViennaFrankfurtParisWashington DCHamburgSan FranciscoWarsawHong KongSeattleZürich	Amsterdam	London	Seoul
Boston Miami Sydney Brisbane Milan Tel Aviv Brussels Montréal Toronto Buenos Aires Munich Vancouver Chicago Osaka Vienna Frankfurt Paris Washington DC Hamburg San Francisco Warsaw	Barcelona	Madrid	Singapore
Brisbane Milan Tel Aviv Brussels Montréal Toronto Buenos Aires Munich Vancouver Chicago Osaka Vienna Frankfurt Paris Washington DC Hamburg San Francisco Warsaw	Berlin	Melbourne	Stockholm
Brussels Montréal Toronto Buenos Aires Munich Vancouver Chicago Osaka Vienna Frankfurt Paris Washington DC Hamburg San Francisco Warsaw	Boston	Miami	Sydney
Buenos Aires Munich Vancouver Chicago Osaka Vienna Frankfurt Paris Washington DC Hamburg San Francisco Warsaw	Brisbane	Milan	Tel Aviv
ChicagoOsakaViennaFrankfurtParisWashington DCHamburgSan FranciscoWarsaw	Brussels	Montréal	Toronto
Frankfurt Paris Washington DC Hamburg San Francisco Warsaw	Buenos Aires	Munich	Vancouver
Hamburg San Francisco Warsaw	Chicago	Osaka	Vienna
	Frankfurt	Paris	Washington DC
Hong Kong Seattle Zürich	Hamburg	San Francisco	Warsaw
	Hong Kong	Seattle	Zürich

As we've established in recent studies of city competitiveness, Sydney is also part of a growing tier of "Contenders" that are just below the very top group of the most globalised and influential urban economies that have the highest all-round appeal to capital, talent, business and visitors.

This high-performing second division includes established contenders such as Toronto and San Francisco, and other cities that are rapidly growing their international business roles and expanding their reach in terms of visitors, entrepreneurs and influence, such as Munich, Berlin and Boston. It also includes the largest business hubs in East Asia, Shanghai and Beijing, who are on a different development path but currently at comparable levels of all-round competitiveness.

Although Sydney has special time-zone, climate and characteristics, many of these cities have also been excelling in terms of infrastructure investment, ecosystem development and public health. It is notable that Sydney has ground to make up when it comes to greenhouse gas emissions, commercialising innovation, and rolling out electric and digital infrastructure (see Table 2).

Table 2: Example metrics where Sydney ranks highly or weakly against other 'contender' world cities

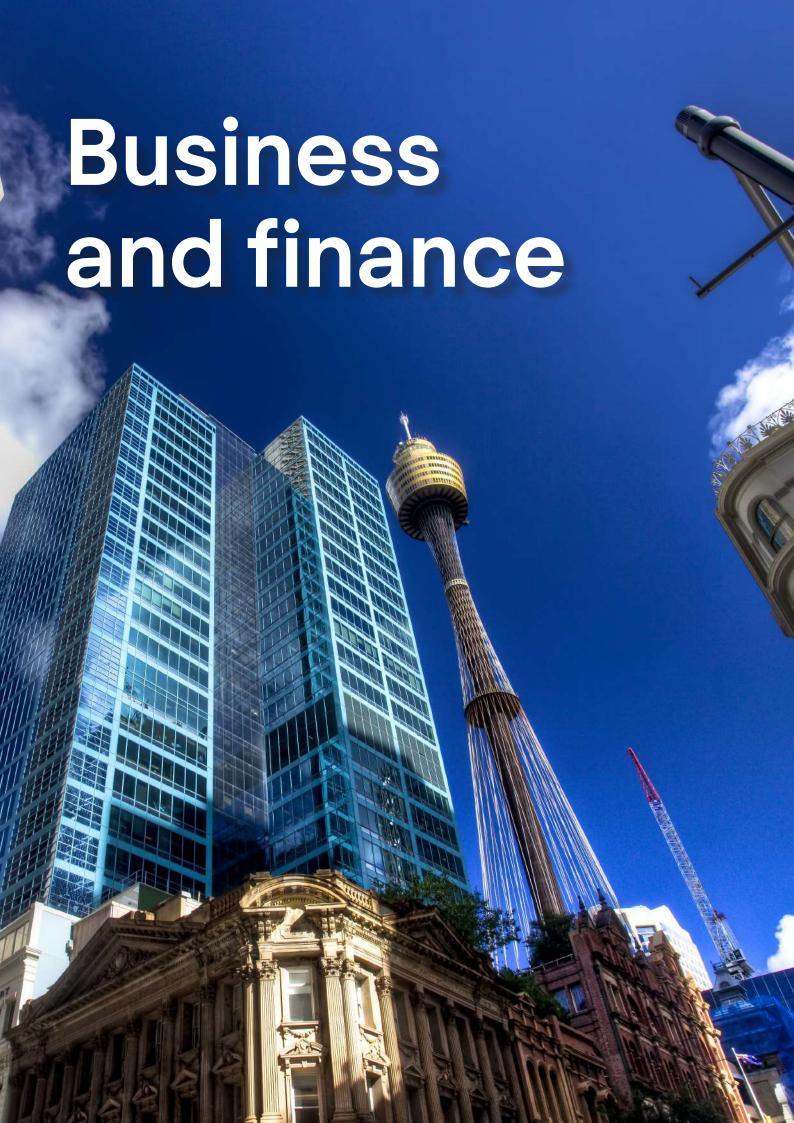
Top 3 among Contenders	Bottom 3 among Contenders
All-round likeability among the global public	Per capita CO ₂ and greenhouse gas emissions
Number of international students	Size, scale and growth trajectory of start-up ecosystem
Low violent crime rate	Resident satisfaction with public transport

In this year's report, we also include a summary of Sydney's performance in 10 relevant underlying metrics that can be tracked year-on-year, to enable comparison with Sydney's peer group. These show that Sydney is above par for its investment image and R&D investment attraction, but is currently in the bottom half for many of the fundamentals that drive city success: productivity, car dependency, pedestrian friendly built form, and housing affordability (see Figure 2). Progress in these areas will be a signal of Sydney's recovery.

Figure 2: Sydney's performance in international benchmarks: Key stats at a glance



Sources (from top to bottom): KPMG Global Investment Monitor 2019; Crunchbase (The Business of Cities research); KPMG Global Investment Monitor 2019; Euromonitor Top 100 City Destinations 2019; JLL (data not publicly available); 2020 Deloitte City Mobility Index; MLab (The Business of Cities research); ITDP Pedestrians First; 16th Annual Demographia International Housing Affordability Survey: 2020; Air Quality Open Data Platform Worldwide COVID-19 dataset. "HQs of high-innovation tech-enabled firms founded since 2000 and listed on Crunchbase." The Business of Cities research, based on aggregating all MLab speed test results within a 30km radius from city centres, May-August 2020. "*"Very unhealthy air pollution exposure = average 24h exposure >150µg/m³ (13th October 2019 – 13th October 2020). "2



Finance and corporate dynamism

Score: 8/10

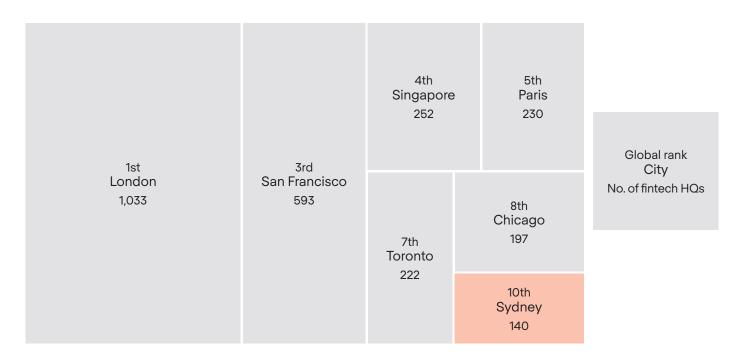
Highlights

Performance

- 1. The city has fallen 3 places to **10th** for the global reach of its business and professional services economy.³
- 2. Sydney is up 5 to 8th for the share of workers employed in corporate and financial sectors.⁴
- 3. For the number of fintech HQs, Sydney is 10th ahead of Boston, Stockholm and Berlin.⁵
- 4. Sydney remains stable at 12th for the market capitalisation rate of its stock exchanges.⁶
- 5. The city has fallen 6 places to 20th for the number of Fortune 500 corporate HQs (18th out of 26 peers).7

Sydney is in the global top 10 for number of fintech HQs

Figure 3: Sydney and peer cities ranking in the global top 10 for number of fintech HQs.



CHANGING

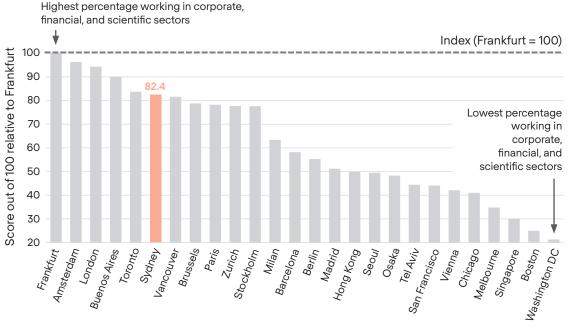
PERCEPTIONS

IMPROVING

MORE RAPIDLY

Strength in corporate and financial sector jobs remains high and growing

Figure 4: Percentage of employees working in corporate, financial and scientific sectors in Sydney and peer cities, relative to Frankfurt.



Source: Mori Memorial Foundation Global Power City Index 2019. Note: scientific sectors typically account for a much smaller percentage of total employment than corporate and financial sectors.

Perception

Sydney is now 21st for perceived fintech strength among financial sector experts, having fallen by 10 places since last year.⁸

Influential composite indices

- 1. In a new all-round study of the size, scale and growth trajectory of cities' fintech ecosystems, Sydney is 13th globally (8th among peers).9
- Sydney has fallen by a further 12 places to 32nd in the major annual study of perceived and actual financial sector strength and has lost its status as a so-called 'global finance leader' for the first time in over 5 years.¹⁰

ANALYSIS

Sydney's finance and corporate services reputation and reach is still a major competitive advantage. The city is well established as the Southern Hemisphere's most connected corporate centre and leading fintech hub. Its status among the 10 or 12 leading centres globally appears fairly secure.

The standard of competition from other cities is growing. A variety of financial centres are maturing rapidly and may present a challenge to Sydney in certain niches in the medium term. These include smaller, more specialised centres that have rapidly shifted to address sustainability criteria, such as Vancouver and Geneva; and larger, fast-growing Asia-Pacific players that are quickly developing a broader set of trusted financial capabilities and vehicles, such as Guangzhou and Seoul.

The methods of benchmarking financial and corporate dynamism remain fairly stable, with the perceptions of executives being considered important alongside indicators of objective performance in specific areas. Increasingly, performance indicators focus on the niches of sustainability and fintech. Unless the recent waning in sentiment among international business professionals turns into a longer-term trend, it is likely that Sydney's position will remain stable into the first years of the next cycle.

Business and investment friendliness

Score: 10/10

Highlights

Performance

- 1. Sydney is **33rd** globally for the number of new job-creating international investments in R&D (15th among peers).¹¹
- 2. The city ranks **9**th for total cross-border real estate investment, ahead of Hong Kong, Singapore and Chicago.¹²
- 3. Sydney is joint 1st out of 17 peers for time to set up a new business, and 6th for cost.¹³
- 4. In a new study of real estate investment, diversity of investors and presences of Forbes 2000 HQs, Sydney is 8th. 14
- 5. The city has fallen 3 places to 15th for the number of new job-creating international investments across all sectors.¹⁵
- 6. For the rate of FDI attraction in tech, Sydney ranks 25th (14th among peers).16
- 7. Sydney has the 7th highest corporate tax rate among its peers.¹⁷

The number of new job-creating investments has declined

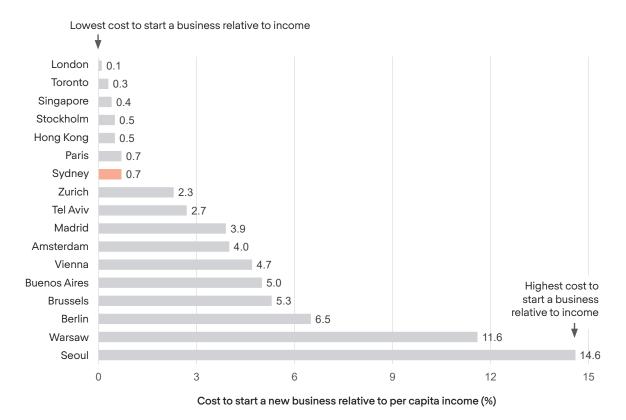
Figure 5: Top 20 cities globally for number of new job-creating international investments, 2018 and 2019.

	2018	2019	
1st	London	London	1st
2nd	Singapore	Paris	2nd
3rd	Paris	Singapore	3rd
4th	Dubai	Dubai	4th
5th	Shanghai	New York	5th
6th	Hong Kong	Shanghai	6th
7th	New York	Barcelona	7th
8th	Bangalore	Hong Kong	8th
9th	Barcelona	Düsseldorf	9th
10th	Dublin	São Paulo	10th
11th	Amsterdam	Madrid	11th g
12th	Sydney	Amsterdam	12th
13th	Toronto	Tokyo	13th
14th	Tokyo	Dublin	14th
15th	São Paulo	Sydney	15th
16th	Madrid	Mexico	16th
17th	Frankfurt	Bangalore	17th 👌
18th	Munich	Warsaw	12th 13th 14th 15th 16th 17th 18th 19th 20th 18th
19th	Beijing	Frankfurt	19th
20th	Ho Chi Minh City	Melbourne	20th



The cost of setting up a new business is lower than many cities

Figure 6: Cost of starting a business as a % of income per person, Sydney and selected peer cities.



Source: World Bank Ease of Doing Business Report.

Perception

1. Sydney has fallen 1 place to 3rd in Asia-Pacific for investor perceptions of future development prospects, although perceived investment prospects have held steady at 4th.¹⁸

Influential composite indices

- 1. In the major annual study of all-round investment performance, Sydney has fallen 1 place to 5th.19
- 2. The city has slipped 4 places for construction cost competitiveness, and is now **71**st globally (18th out of 28 peers).²⁰
- 3. For all-round business friendliness, Sydney has dropped more than 4 places and now ranks outside the global top 15.²¹
- 4. The city ranks 37th for regulatory and legal ease of real estate transactions.²²

ANALYSIS

Sydney remains a more friendly city for business than many of its peer cities which have struggled in recent years to maintain a predictable environment. Despite higher labour costs and corporate tax rates, Sydney continues to benefit from simpler business setup and exit arrangements. Sentiment among global real estate investors has also remained buoyant.

Business and investment friendliness is primarily based on perceptions of executives and investors around the world. These have been more common in real estate, but there is growing appetite to measure investment attraction into enterprises, and wider planning and co-ordination barriers for business, both of which could see a downward pull on Sydney's scores in coming years. The city's investment market continues to be heavily skewed towards real estate over technology and production.



Talent and labour market

Score: 8/10

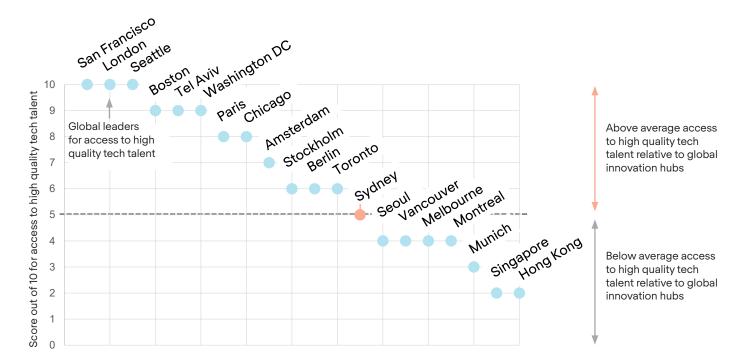
Highlights

Performance

- 1. Sydney is **51**st for the number of advertised technology-related job opportunities.²³
- The city ranks 14th among 30 peers for the concentration of employees working in the knowledge, policy and digital economies.²⁴
- 3. For access to high quality technology talent, Sydney is 13th out of 20 peers, with fewer top GitHub developers and experienced engineers in the tech ecosystem.²⁵

Access to high quality tech talent is lower than in other cities

Figure 7: Sydney and peer cities' scores for access to and quality of tech talent in the innovation ecosystem.



Source: Startup Genome Global Startup Ecosystem Report. Measures the percentage of engineers and growth employees with at least 2 years of startup experience, the number and density of top GitHub developers, English proficiency, and the number of experienced scaled teams in the ecosystem.

OTHERS

IMPROVING MORE RAPIDLY

ALTERED

APPRAISAL

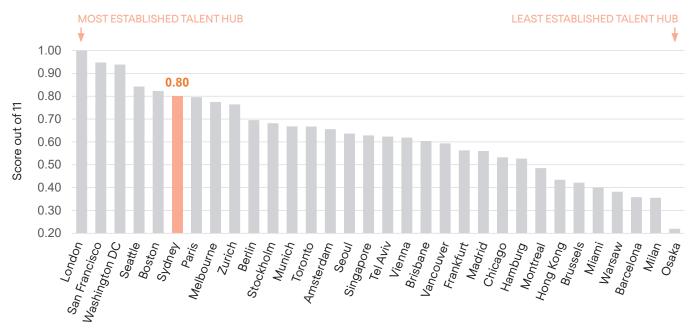
IMPROVEMENT

Influential composite indices

- In a new influential study of global talent hubs, Sydney ranks 7th. Its position ahead of established global
 cities such as Paris, Berlin and Toronto reflects the city's high quality universities, growing percentage of
 young and working age residents, and competitive rates of higher education attainment relative to others.²⁶
- 2. Sydney is **7**th for ingredients to attract talent, but only **40**th for ingredients to retain it. On one hand, Sydney excels for its graduate skills base and presence of top universities. But unaffordability and congestion are becoming large deterrents to long-term retention.²⁷
- 3. Sydney has **climbed a further 2 places to 16th** in the major joint study of demographic diversity and higher education attainment, as both have been growing steadily relative to other cities.²⁸

Sydney's universities, skills base and youthful population underpin its reputation as a global talent hub

Figure 8: Sydney and peer cities' scores as all-round talent hubs, relative to London.



Source: JLL Innovation Geographies Report 2019.

ANALYSIS

Sydney's track record of producing knowledge and skills is now consistently competitive. High-calibre and adaptive universities, and strong career-age population growth, ensure the skills base continues to expand.

Yet there is still a gap in the size and breadth of the real knowledge economy compared to many cities Sydney considers peers. The likes of Toronto and Amsterdam have made faster progress at growing knowledge-rich and knowledge-hungry sectors. Sydney is gradually growing the share of its jobs that are in high-paying, high-tech industries, although access to the very best tech talent is still rated as more scarce than in other leading urban economies.

Knowledge and talent benchmarks are mostly based on jobs data and university performance measures, although graduate perceptions about city opportunities and appeal are also significant. Covid-19 has focused attention on how resilient cities' job markets are, given the disruptions of remote working and the vulnerability of key industries to demand shocks. Other global cities have a larger share of the workforce that can shift more easily to remote working, and Sydney is more reliant on population-driven industries such as construction, retail and hospitality.

So although this is a strength for Sydney currently, there are signs that Sydney's scores may fall unless the city successfully attracts and accommodates more mobile talent after Covid-19.

Higher education

Score: 9/10

Highlights

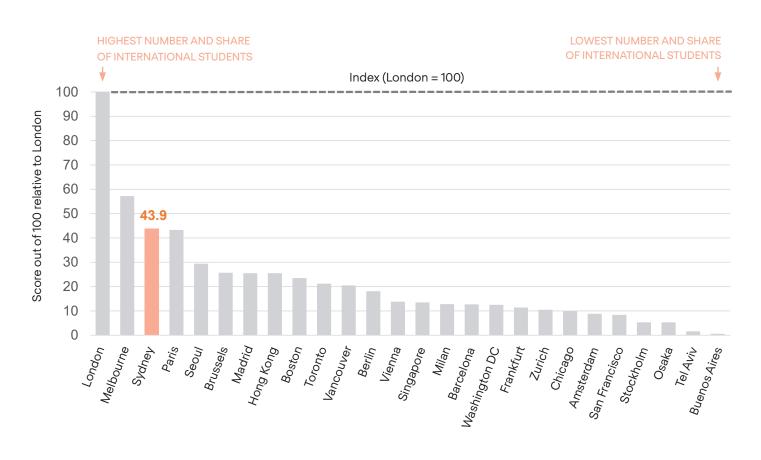
Performance

- 1. Sydney is still 3rd for the number and share of international students.²⁹
- 2. In the major measure of aggregate university performance, Sydney is up 2 to 17th.30
- 3. The city ranks 7th among its peers for aggregate university performance in STEM subjects.³¹

Sydney is a top 3 city for international student presence

Figure 9: Number and share of international students in Sydney and peer cities, relative to London.



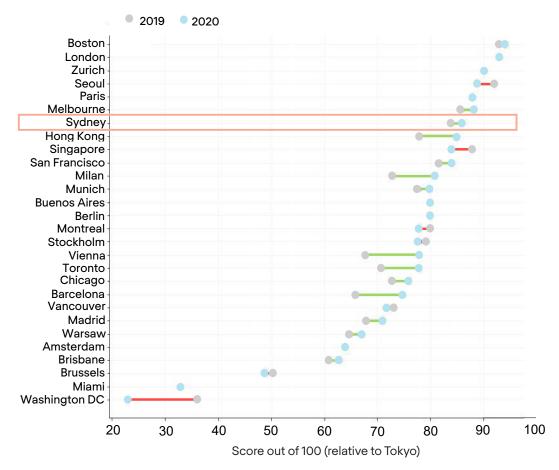


Perception

- 1. Sydney has climbed 5 places to **9**th in a major study of perceived university reputation among domestic and international employers weighted to account for youth unemployment, and now ranks ahead of Toronto, Berlin and Los Angeles.³²
- 2. For perceived student experience, Sydney is down 7 places to 21st, and is now 12th out of 28 peers. 33

Sydney's universities have a strong and improving reputation among employers

Figure 10: Number of international and domestic employers identifying Sydney and peer cities' universities as producing excellent graduates, weighted to account for youth unemployment, relative to top city (Tokyo).



Source: QS Best Student Cities 2019

ANALYSIS

Higher education remains a core strength for Sydney. Up until Covid-19, Sydney has been one of the most in-demand destinations for students globally, and overall scores remain impressively high, even as the landscape becomes more competitive. The city's universities have continued to improve, appetite among international students has been consistent, and the pipeline of knowledge that universities produce is well regarded by potential employers.

Most benchmarks assess Sydney based on student flows, and performance across all universities. Global attention is also shifting to the ability of universities to produce labour-market-ready graduates and stimulate jobs growth in science, technology and engineering sectors. A portion of measures are linked to students' perceived experience and expectations. High costs of student life hold back Sydney's scores here, as before Covid-19 reported experience was declining more rapidly year-on-year than in any of Sydney's peer cities outside Australia.

The curbs on student travel and interaction will mean that the competitive landscape for higher education will change in the next 2-3 years. Sydney's underlying offer looks like it will remain very competitive, but the city will have to be responsive to what students will look for, and concern about future job opportunities.

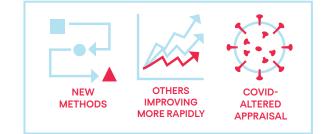
Innovation and R&D

Score: 6/10

Highlights

Performance

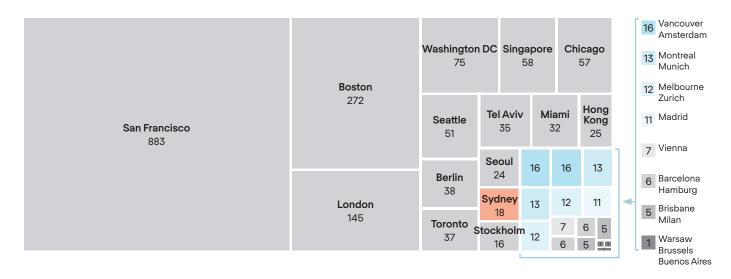
- Sydney is 14th among 31 peers for the number of high innovation, tech enabled firm HQs founded since 2000 with over \$100m in all-time funding.³⁴
- 2. The city has **fallen 12 places to 31st** in the major measure of size, scale and growth trajectory of cities' start-up ecosystems.³⁵



- 3. Sydney is 26th for the number of innovative firms in AI, putting it 18th among the 21 most established global cities.³⁶
- 4. The city ranks **34**th for the number of blockchain transactions and start-ups, ahead of smaller specialised European centres such as Stockholm and Vienna, but well behind other global 'Contender' cities such as Toronto, Munich and Boston.³⁷
- 5. For concentration of co-working spaces, Sydney is 26th out of 48 global cities.³⁸
- 6. For the number of high-investment tech firms per resident, The City of Sydney is 20th out of 31 peers. 39
- 7. The City of Sydney is 23rd out of 31 peers for the number of early-stage start-ups per resident.⁴⁰

Sydney does not yet stand out for high-investment tech-enabled firm HQs

Figure 11: Number of high innovation, tech-enabled firm HQs founded since 2000 with more than \$US100m all-time funding in Sydney and peer cities.

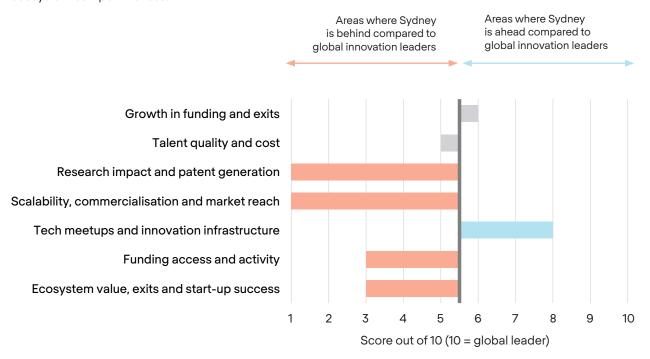


Influential composite indices

- 1. For start-up momentum, Sydney is up 1 place to 12th.41
- 2. In the major measure of all-round innovation ecosystem strength, Sydney is down 4 places this year to **27**th, or 15th among its peers.⁴²
- 3. The city is **16**th globally in a new study of innovation hubs that considers the ingredients for innovation (e.g. R&D expenditure, investment in high-tech sectors) as well as the outputs (e.g. VC investment, patent applications).⁴³

Sydney's ecosystem has plenty of physical infrastructure, but faces funding and scaling constraints

Figure 12: Sydney's performance relative to global innovation leaders* across the different dimensions of ecosystem competitiveness.



Source: Startup Genome Global Startup Ecosystem Report. *Global innovation leaders = top 30 innovation ecosystems globally.

ANALYSIS

There has been progress but innovation remains a disadvantage for Sydney. The international competition to host the innovation economy has become widespread in recent years, and Sydney's overall rate of growth across its ecosystem has been slower, especially among studies that look at capital-raising and leading edge technology sectors. New figures this year point to the city having fewer local and experienced VC funds, and less cumulative experience at running or financing start ups and scale ups to grow into major, game-changing companies.

Benchmarks mostly focus on innovation performance rather than perception, and increasingly are able to measure commercialisation outcomes as well as research inputs. This is one reason why Sydney's scores have been pulled down. While Sydney has world-class research universities, it struggles to convert this into commercial activity. Perception studies have indicated that appetite among entrepreneurial talent to live in Sydney is in principle strong, but barriers to relocation and business development remain constraints.

There is potential for Sydney's scores to improve and for the city to establish itself as a top 20 city of innovation in the years ahead, but it will require co-ordinated improvements to the innovation environment so that the right incentives are in places for research, enterprise, talent and investment in new business. It will also require concerted effort from State and Federal Governments to invest in innovation, aligning existing infrastructure and precinct investments with economic strategies.



Liveability

Score: 8/10

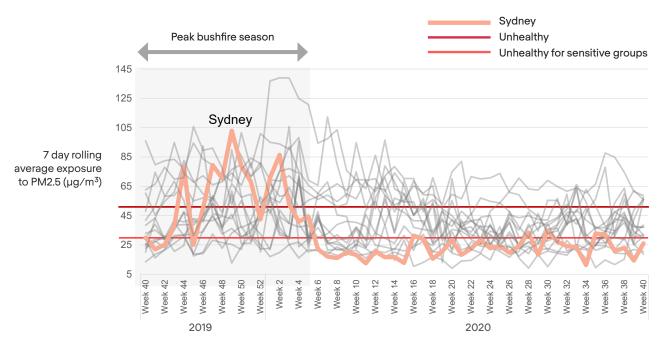
Highlights

Performance

- 1. Sydney has the 2nd lowest murder rate of 48 top global cities.⁴⁴
- 2. Sydney had the 2nd highest number of days with very unhealthy air pollution exposure in 2019-20 among 16 measured peers (5 days), and fell by over 1,000 places in the major global ranking of annual air pollution exposure in over 4,000 global cities and towns between 2018 and 2019, due primarily to the impact of the bushfires on Sydney's air quality (see Figure 13).⁴⁵
- For the number of days where exposure to air pollution is in line with WHO guidelines, Sydney is still 6th among its 30 measured peers, but in 2019, for average annual exposure to PM2.5, Sydney now has only the 9th lowest exposure out of 21 cities.⁴⁶
- 4. Sydney is down 5 places to 17th for the average level of river pollution.⁴⁷
- 5. The city has the 3rd highest self-reported commute times among its peer group.⁴⁸

Exposure to air pollution in Sydney is becoming worse than in many other cities

Figure 13: Weekly average exposure to PM2.5, µg/m³, October 2019 – October 2020.



Perception

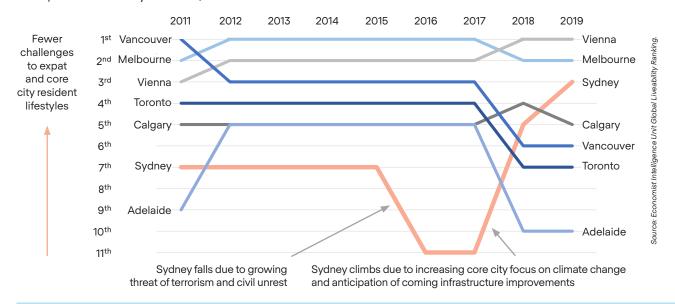
- Expats rate Sydney's work-life balance more positively than all other peer cities except Montreal.
 Over 75% of expats are happy with their work-life balance, compared to an average of 60% globally.⁴⁹
- 2. Sydney is 7th among its peers for the perceived child safety of local neighbourhoods among families and parents.⁵⁰
- 3. Sydney is in the global top 20 for average citizen happiness (8th among peers).51
- 4. The city ranks 11th among 29 peers for residents' perceptions of the quality of parks and green spaces, and 12th for perceptions of pollution levels and environmental quality.⁵²
- 5. Sydney is **30**th globally for expat satisfaction with the quality, affordability and accessibility of healthcare and the quality of the environment (15th out of 28 peers).⁵³
- 6. The city ranks 76th for perceived family friendliness in a new survey of families and parents.⁵⁴
- 7. Sydney is 23rd out of 28 peers for citizen satisfaction with hospitals.⁵⁵

Influential composite indices

- Sydney has climbed 2 places to 3rd in the major all-round study of lifestyle comfort for expats and core city residents, and is up
 from 11th in 2017. This is mainly due to improvements to the city's 'culture and environment' score as a result of the City of Sydney's
 increased focus on combating and mitigating the impacts of climate change, for example through its urban forest growth
 strategy, and improvements to city-wide stability due to declines in the threat of terrorism and civil unrest (see Figure 14). ⁵⁶
- 2. Sydney is up 2 places to 5th in the major all-round study of safety.⁵⁷
- 3. For all-round family friendliness, Sydney is **47**th, or 17th among 32 peers. High scores for healthcare (4th) and activities for children (11th) are outweighed by high levels of unaffordability (124th) and unemployment (75th).⁵⁸

Sydney's safety, services and amenities for expats and inner city residents have overtaken Canada's in recent years

Figure 14: Evolution of Sydney and peer cities' ranks in the major annual all-round measure of liveability for expats and core city residents, 2011-2019.



ANALYSIS

Liveability remains a long-standing advantage and selling point for Sydney. The city continues to top the global charts for its low violent crime rate, more tolerable work-life balance, and access to the scenic outdoors, relative to other cities. The main negative impact has been caused by the effect of the bushfires in significantly raising the rate of air pollution exposure.

Local perceptions of liveability have become more decisive in shaping cities' scores. There is more attention on what individuals and families make of public services, work-life balance, traffic, safety and amenities in their cities. In general, when looked at across the whole metropolis, these figures start to weigh Sydney down as issues of congestion and access tend to be seen less favourably than Sydney's liveability 'on paper'.

Wages and costs Score: 4/10

Highlights

Performance

- Sydney has the 3rd most unaffordable housing market out of 14 peers.⁵⁹
- 2. The city ranks 18th out of 30 peers for GDP per capita.60
- 3. Sydney is **bottom of its peer group** for public transport affordability - residents spend a greater proportion of income on a monthly public transport pass than in any other peer city, according to self-reported data.61

CHANGING

PERCEPTIONS

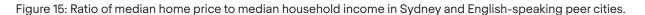
NEW

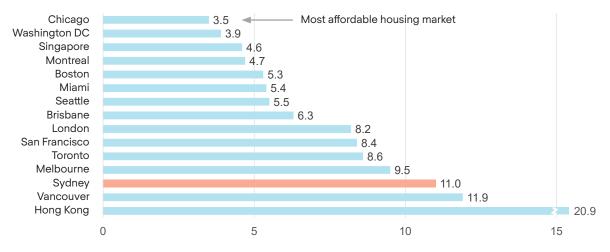
METHODS

PERFORMANCE

- 4. The city has fallen 14 places to 98th for student affordability.62
- 5. Sydney's relative purchasing power puts it 11th among its peers. 63
- 6. An improvement to average annual salaries has seen the city improve by 1 place to 15th for gross annual wage level.64
- 7. Sydney has slipped 2 places to 33rd for the average cost of basic goods (17th most expensive out of
- 8. For cost of renting, Sydney is down 3 places to 35th out of 48 cities (18th most expensive out of 26 peers).66

Sydney's housing market is extremely unaffordable by global standards





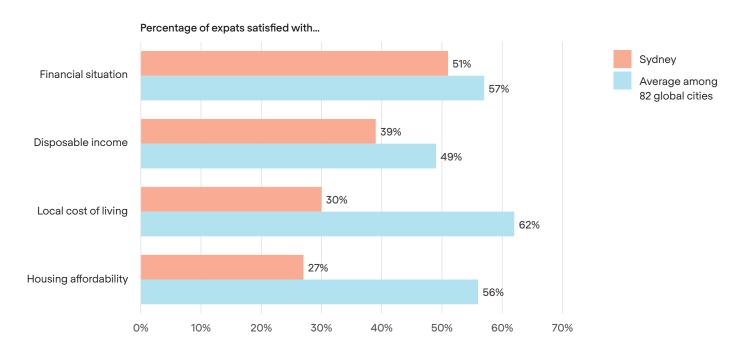
Source: Demographia International Housing Affordability Survey 2020.

Perception

- 1. Sydney is **70**th for expat perceptions of the local cost of living (22nd out of 28 peers). 70% of expats are unhappy with how expensive it is to live in the city, compared to an average of 38% globally.⁶⁷
- 2. The city ranks **56**th in a new survey of global expats on satisfaction with financial situation and disposable income (16th out of 28 peers). Only just over half of expats (51%) are pleased with their financial situation, compared to 57% globally, and only 39% feel they have a disposable household income that is more than they need to cover daily costs (vs. 49%).⁶⁸
- 3. For expat perceptions of the ease of finding a home and housing affordability, Sydney is **52nd** globally (12 out of 28 peers). 73% of expats are unhappy with the cost of housing compared to 44% globally.⁶⁹
- 4. Sydney ranks 10th out of 30 peers for resident satisfaction with rental affordability.70

Expats in Sydney are less satisfied with affordability and cost of living than in other cities

Figure 16: Expat satisfaction with various aspects relating to wages and costs in Sydney compared to on average in global cities.



Source: Expat Insider 2019: The Best and Worst Cities for Expats.

ANALYSIS

For some years now rising unaffordability has been eroding Sydney's reputation as an open and affordable city for people of different backgrounds and incomes. Although the city maintains competitive salaries and a high overall purchasing power, the cost of living is viewed to be more expensive than in many other global cities. Housing is at the heart of this – when Covid-19 hit Sydney had the third most unaffordable housing market in the English-speaking world.

In general the comparative studies are becoming more informed by perceptions as well as the hard data, especially among renters, students and long term relocators. This has revealed a growing sense of discontent among international communities and upper income workers with Sydney's cost of living and housing.

Covid-19's effects will alter the affordability of cities for people in different industries and in different inner-city and suburban locations. We can expect some volatility, not least given the prospect of a worldwide recession and severe unemployment, but so far the evidence is that relative to other cities Sydney's outlook in this area will remain stable.

Sustainability

Score: 3/10

Highlights

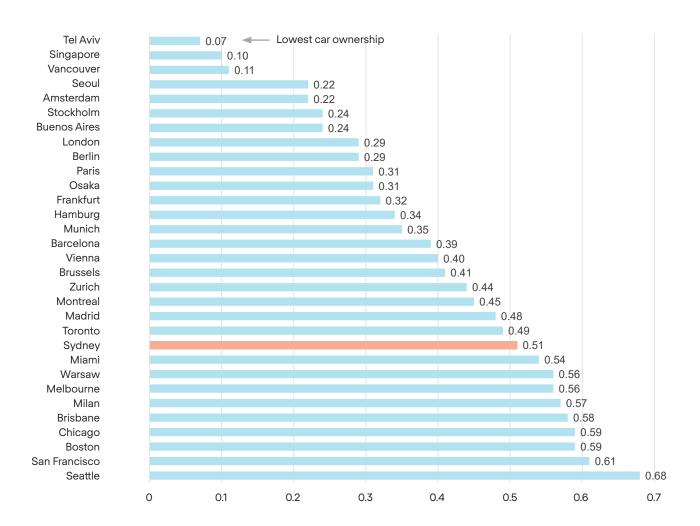
Performance

- 1. Sydney is **2**nd globally for the sustainability performance of its real estate sector, as measured by the presence of green building regulations and the stringency of environmental standards applied to new developments.⁷¹
- 2. The city has improved by 3 places to **8**th in a study of MICE tourism sustainable policy and practice, and is now ahead of all of its measured peers except Zurich.⁷²
- 3. Sydney has a very high rate of car ownership by global standards the **31**st highest among 100 cities globally, or the **10**th highest among 31 peers.⁷³
- 4. Self-reported citizen data suggests Sydney is **22nd** out of 29 peers for CO₂ emissions due to time spent in traffic during the daily commute.⁷⁴
- 5. For CO_2 emissions and per capita greenhouse gas emissions, Sydney has improved 20 places since last year but is still 97^{th} globally, or 17^{th} out of 28 peers.⁷⁵
- 6. The city has the 3rd lowest number of electric vehicle charging points per resident among its peer group.⁷⁶
- 7. Australia ranks 56th out of 61 countries for action on climate change.77



High traffic emissions reflect an established culture of car ownership

Figure 17: Average number of cars owned per person in Sydney and peer cities.



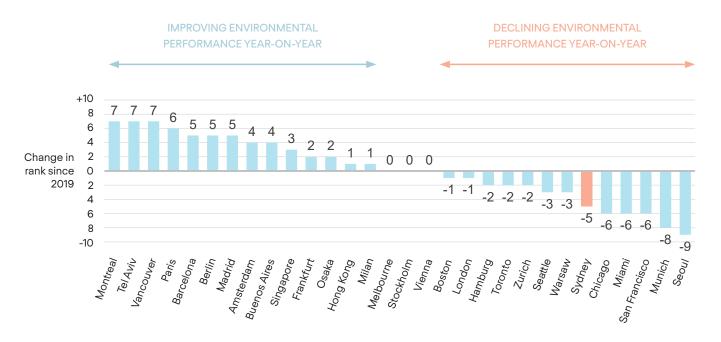
Source: Mister Auto 2019 Driving Cities Index. Underlying data sources: United Nations, US Census Bureau, Eurostat, local statistics departments, local news resources.

Influential composite indices

 In the major all-round study of environmental friendliness, green space and sustainability, Sydney has slipped 5 places to 23rd.78

Sydney's all-round environmental friendliness is on the decline

Figure 18: Change in Sydney and peer cities' rank in the major measure of all-round environmental friendliness and performance, 2019-2020.



Sources: IESE Cities in Motion Index, 2019; 2020.

ANALYSIS

In recent years, sustainability has become a clearer disadvantage for Sydney. The lack of national action on climate change and the recent bushfires weigh the city's score down. The trend over the past three years has been one of gradual decline relative to others, but 2020 stands out as a year where Sydney's sustainability threats have really become exposed.

For many years, Sydney benefited from global comparisons that were inadvertently biased in favour of low-density environments where the effects of environmental externalities are more dispersed. Over time attention has shifted to how well cities implement sustainable policies and how well they are adapting to cleaner mobility and energy systems. Covid-19 is accelerating this trend.

Sustainability remains an area mostly assessed by absolute progress and performance indicators – with perception measures weighted towards how committed cities are to tackling climate change. Sustainability performance is also weighted significantly by national- and state-level (in)action, which means that Sydney is dragged down by Australia's extremely poor action on climate change.

On current trends, Sydney is correctly being scored poorly and our city's potential to improve in the coming years will depend on higher tiers of government as well as local and metropolitan initiatives.

Transport and infrastructure

Score: 3/10

(2/10 transport, 4/10 other infrastructure)

Transport

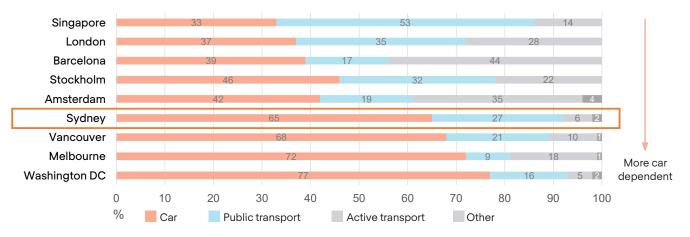
Highlights

Performance

- 1. Sydney ranks 3rd among 29 peers for the number of new public transport stations opened over the past 18 months or due to open in the next 5 years.79
- 2. Sydney ranks 13th out of 20 global cities for public and active transport mode share, or 6th out of 9 peers.80
- 3. The city is 32nd among its 33 peers for the number of blocks per square kilometre, a key indicator of city-wide walkability.⁸¹
- 4. Sydney ranks 25th among its peers for the percentage of residents living within 1km of education and healthcare services. At 43%, Sydney is ahead only of North American cities, Brisbane and Singapore. 82
- 5. Sydney is 20th for the percentage of residents living within 100m of car-free spaces. At 49%, Sydney is still well behind well behind leading European cities such as Berlin (72%), Stockholm (79%) and Zurich (87%).83
- 6. The city ranks 56th for the availability of online shared mobility services such as ride-hailing and bike sharing (27th among peers). 84
- 7. In a new measure of the coverage and efficiency of cities' public transport systems, Sydney is 7th out of 14 peers, due to the relatively high number of people that a person living in the city could potentially meet within a typical daily public transport commute.85

Sydney is still a highly car dependent city by global standards

Figure 19: Modal share of journeys to work in Sydney and selected peer cities in 2020.



Perception

- 1. Sydney is 55th for expat satisfaction with public transport (25th out of 28 peers).86
- 2. Sydney residents are the 8th least satisfied with public transport among the peer group.87

Influential composite indices

- 1. Sydney is 25th for the operating hours, reliability and management of its public transport system.88
- 2. Sydney ranks 17th for density of stations, walkability and multimodal mobility adoption.89
- 3. For all-round cycling friendliness, Sydney is 52nd, or 16th out of 17 peers.90

Other infrastructure

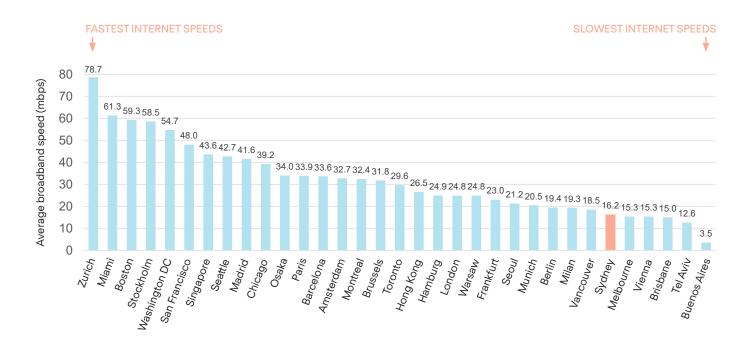
Highlights

Performance

- 1. Sydney is 25th out of its 33 peers for consistent city-wide access to high-quality broadband.91
- 2. Sydney is up 1 to 12th globally for average mobile download speeds.92

Sydney's broadband speeds are not keeping pace with citizen connectivity needs

Figure 20: Average metropolitan-level broadband speeds in Sydney and peer cities.



Source: The Business of Cities research (underlying source: MLab). Aggregates all MLab speed test results within a 30km radius from city centres, May-August 2020. Final speeds weighted in line with other global speed test studies. 95

Perception

- 1. The city ranks 24th out of 30 peers for resident satisfaction with internet speed and reliability.94
- 2. For perceptions of smartness among urban specialists, Sydney is now **50**th globally, down 33 places since last year.⁹⁵

Influential composite indices

1. The city is **3rd** among mid-sized cities globally for appetite and readiness for incorporating Al and other next-generation technologies into its infrastructure systems.⁹⁶

ANALYSIS

Sydney's transport system is beginning what may become a long upward curve but remains at a significant competitive disadvantage due to several decades of chronic car dependence and lower uptake of public transport than in other cities. In recent years this has been compounded by evidence that Sydney is less walkable and bike-friendly compared to other cities. In 2020 this sees Sydney overall rated at its joint lowest point in the last 5 years.

Sydney is not being assessed fairly by transport measures that only capture completed and in-use parts of the transport system. The current cycle of investment in Sydney rail will see the city gain more new infrastructure than the vast majority of its peer cities. This success is also capable of driving other positive outcomes in terms of land use, precinct development and behaviour change to support a post-Covid city.

On digital infrastructure there are also signs that Sydney's metropolitan digital speeds are not keeping pace with the public's connectivity needs. After Covid-19, this may become more relevant to the decision-making of companies and talent either based in Sydney or contemplating a move.

Covid-19 is triggering benchmarks to focus more on two areas. The first is cities' transport resilience, given short and medium-term threats to many cities' public transport revenue and investment model. The second is access for residents to essential services and amenities on foot or by bike. Recent data shows Sydney's built environment makes it less walkable and harder to reach safer and convivial public spaces compared to other cities. There is also more global attention on perceptions of transport – where Sydney is also behind - as well as the total size and efficiency of the whole infrastructure platform. We expect it will take another year until Sydney's ongoing improvements register globally. More broadly, this will remain an area of relative disadvantage until two or three cycles of consistent investment are delivered.



Diversity and inclusion

Score: 10/10

Highlights

Performance

 Sydney is 9th for the percentage of foreign-born residents, ahead of London, Vancouver and San Francisco.⁹⁷



Sydney is in the global top 10 for demographic diversity

Figure 21: Global rank for % of foreign-born residents, Sydney and selected peer cities.



Source: Nestpick 2019 Generation Z City Index (underlying data sources: Sources: OECD, Eurostat, George Washington University department of Globalization, Urbanization and Migration, official statistics departments, other sources).

Perception

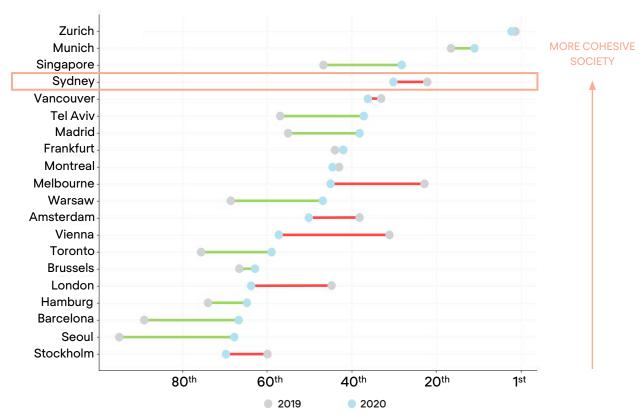
- The city ranks 4th out of 28 peers for expat perceptions of how easy it is to feel at home and get used to the local culture. 81% of expats find the local culture easy to get used to – much higher than the global average of 62% and 2nd only to Calgary in Canada.⁹⁸
- 2. Sydney is **23rd** for expat perceptions of local friendliness and tolerance towards foreign residents, with 70% of expats finding locals generally friendly compared to 64% on average globally.⁹⁹

Influential composite indices

- 1. In the major all-round study of social cohesion, Sydney has slipped 8 places to **30**th, but is still **4**th among its peer group.¹⁰⁰
- 2. The city has slipped 1 place to 12th for city-level ingredients to support women's entrepreneurship. Relative to others, Sydney excels for the percentage of women on corporate boards and the number of events supporting women's entrepreneurship, but is behind for the number of VC-backed firms with a minimum threshold of female partners and for the number of female-headed business associations.¹⁰¹
- 3. For social acceptance and legislative rights of LGBTQI+ communities, Sydney is 8th among its peer group. 102

Sydney's model of social cohesion was stronger than most up until Covid-19

Figure 22: Top 20 peer cities for social cohesion and year-on-year change in rank.



Source: IESE Cities in Motion Index.

ANALYSIS

Sydney's openness and cohesion as a fast-growing metropolis means that its diversity and inclusion scores are an enduring advantage. The city's accumulated cultural mix, welcoming and easy-going attitude, and more progressive approach to sexual minorities, count in its favour in most global studies.

Across the board, Sydney compares favourably with most of its close peers, and is part of a group that includes Toronto, Vancouver and Berlin and now tends to score consistently well in this theme.

Covid-19 is starting to lead to more metrics and monitoring around cities' inclusiveness and integration, economically, spatially and socially. Over time Sydney may have a sharper opportunity to promote its leadership in some of these areas, especially if it is able to re-establish its economic footing earlier than others due to effective pandemic management.

Visitor and cultural appeal

Score: 6/10

Highlights

Performance

- 1. Sydney has remained stable at **55**th for the number of international overnight tourist arrivals.¹⁰³
- 2. The city is **2nd** globally for the number of high-capacity stadia and event spaces.¹⁰⁴
- 3. Sydney has fallen by 1 place to 17th for average spend among international tourists, but is still 5th among its peers and ahead of Barcelona and Miami.¹⁰⁵
- 4. Sydney has climbed by 5 places to **20th** for the number of high-level rotating meetings and conferences, having overtaken Montreal, Beijing and Stockholm.¹⁰⁶
- The city ranks in the bottom 30% of its peer group for the number of theatres and concert halls and museums and galleries (19th out of 26 and 24th out of 26 respectively).¹⁰⁷



International visitors to Sydney spend more than elsewhere

Figure 23: Number of international overnight visitors and international overnight visitor spend per resident relative to selected peer and 'Contender' cities.



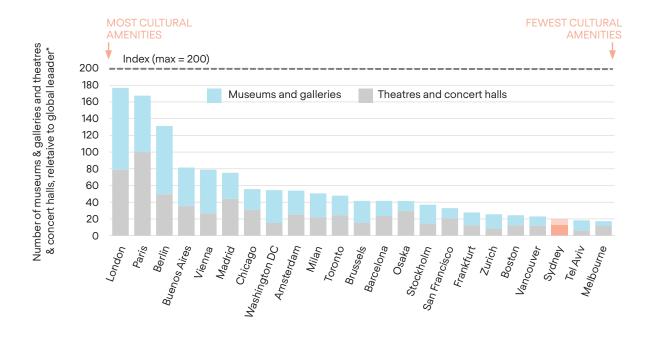
Table 3: Number of international overnight tourist visitors per resident relative to peer cities.

Rank among peers		International overnight visitors per resident
1st	Amsterdam	3.67
2nd	Hong Kong	3.56
3rd	Singapore	3.38
4th	Vienna	2.55
5th	Brussels	1.71
6th	Paris	1.52
7th	London	1.37
8th	Miami	1.34
9th	Vancouver	1.34
10th	Barcelona	1.28
11th	Stockholm	1.15
12th	Berlin	1.01
13th	Warsaw	0.91
14th	Sydney	0.84
15th	Madrid	0.82

Sources: Euromonitor Top 100 City Destinations 2019; Mastercard Destination Cities Index 2019; local census agencies.

Access to cultural amenities is not as high as in other cities

Figure 24: Number of museums and galleries and theatres and concert halls in Sydney and peer cities, relative to global leader.



Source: Mori Memorial Foundation Global Power City Index. "Global leader for number of museums and galleries receives a score of 100; global leader for number of theatres and concert halls receives a score of 100 (maximum possible score = 200).

Perception

- 1. Sydney is down a further 14 places to **51**st for the number of highly-rated culinary, cultural and entertainment experiences.¹⁰⁸
- 2. The city ranks 19th out of 26 peers in a study of the attractiveness of cities' dining scenes that measures the percentage of visitors who visited the city to experience the dining scene and the number of world top 1,000 restaurants.¹⁰⁹
- 3. Sydney is **21st** out of 26 peers in a study of the attractiveness of cities' shopping scenes that measures the percentage of visitors who visited the city to go shopping and the number of luxury brand shops.¹¹⁰
- 4. Sydney has the **6**th lowest resident satisfaction with cultural activities out of its peer group. In a recent survey, only 75% of residents agreed that cultural activities such as shows, bars and museums are satisfactory, lower than among leading peer cities such as Montreal (84%), Berlin (81%) and Barcelona (81%).¹¹¹

ANALYSIS

Up until Covid-19 Sydney continued to perform very well as a tourism and consumption gateway. The visitor, events and sports economy has been one of the most competitive in the world on a pound-for-pound basis. The main gap has been the variety of cultural and evening amenities on offer for visitors and residents alike, which will be helped by Sydney's new 24-hour economy strategy.

If anything Sydney is unduly penalised by studies that assess total volumes of demand, given the city's distance from many global markets. The growing number of perception studies do indicate, though, that the city is not widely perceived as a city with a world-class dining and culture scene. More benchmarks are now weighting towards the quality of tourism in future, and how to curate meaningful experiences for locals, in CBDs and suburbs. The measures also focus on the availability and quality of amenities in different parts of the metropolis.

Overall despite the slight drop this year, Sydney's relative performance has been fairly stable and there will be key tasks to protect and reimagine the visitor economy in the coming 12 months.

Brand, image and influence

Score: 10/10

Highlights

Performance

- For the number of references, recommendations and stories shared online about the city, Sydney has climbed 4 places to 26th.¹¹²
- 2. Sydney is 11th among its peers for visibility in a sample of the most influential and highly regarded city rankings and benchmarks.¹¹³
- 3. In a new study of cities' share of the total online conversation across multiple social media platforms, the city is 17th among its peers.¹¹⁴

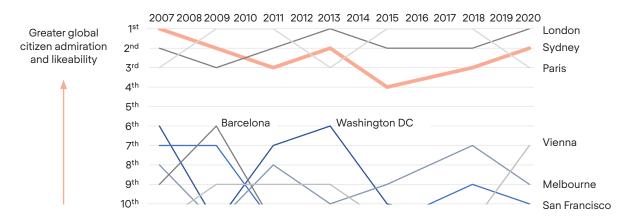
Perception

- Sydney is 12th for perceived image among investors, but 15th for perceived attractiveness as a location to set up a new business.¹¹⁵
- 2. Sydney has climbed 1 place to 2nd in the major global citizen survey of cities' international status, physical appeal, amenities, friendliness and business strength.¹¹⁶
- 3. For travel agency and writer perceptions of beauty, Sydney is 9th.117
- 4. The city ranks 8th among its peers for perceived friendliness in a new global study that tracks editorial opinions and experiences and visitor reviews.¹¹⁸
- 5. Sydney is now 12th for financial sector reputational advantage the positive difference between perceptions of financial experts about the financial industry and objective financial industry performance, has declined, seeing Sydney slip from 8th last year.¹¹⁹



Sydney remains enduringly likeable and appealing among the global public

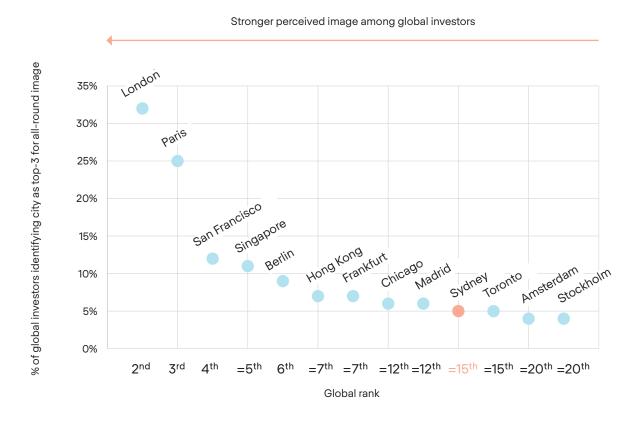
Figure 25: Year-on-year evolution of peer cities in the top 10 for esteem, 2007-2020.



Source: Anholt-IPSOS City Brands Index.

Sydney maintains a competitive image among global investment allocators

Figure 26: Peer cities in the global top 20 for perceived image among global investors.



Source: KPMG Global Investment Monitor 2019.

ANALYSIS

Global regard for Sydney remains very high by global standards. It may gain a boost this year as a result of Australia and NSW's more efficient and judicious response to the Covid-19 outbreak. Sydney's image among global corporate and real estate investors, as a city that deserves to belong in the conversation of the world's most investable locations, also appears to be resilient and stable. The city maintains its status as a safe, attractive and politically stable option in the Asia-Pacific.

The benchmark surveys are influenced a lot by the views of real and aspiring visitors rather than by mobile talent or business. Mostly the data illustrates the warm affection the world holds for Sydney's beauty and friendliness. The rise in studies that are based on sentiment expressed on online platforms and outlets, which canvas a broader set of conversations the world has about cities (culture, music, innovation, decision-making, business), suggest that Sydney is not talked about as much as it is treasured. Meanwhile there still seems to be a tendency towards Sydney's icons overshadowing its innovation and enterprise brand.

The work to broaden and enrich Sydney's identity remains as important as at any time in the last 5 years. Many cities – from Barcelona to Hong Kong to Amsterdam – are using the impetus of the pandemic to start an identity-rebuilding process that is more regional, and more about quality and values over quantity and icons.

Endnotes

1	Final average speeds weighted in line with other global speed test studies (90% download, 10% upload,
	plus modified trimean 1:2:1 ratio for 10th percentile. 50th percentile and 90th percentile).

- 2 https://aqicn.org/faq/2013-09-09/revised-pm25-aqi-breakpoints/
- 3 GaWC Group The World According to GaWC, 2020: https://www.lboro.ac.uk/gawc/world2020t.html
- 4 Mori Memorial Foundation Global Power City Index Yearbook 2019 Employees in Business Support Services: http://mori-m-foundation.or.jp/wordpress/english/publications2
- 5 WorkThere Global Fintech Report: https://www.workthere.com/media/791337/global-fintech-report.pdf
- 6 Mori Memorial Foundation Global Power City Index Yearbook 2019 Stock Market Capitalization: http://mori-m-foundation.or.jp/wordpress/english/publications2
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- 19 JLL Global Real Estate Transparency Index 2020 (data not publicly available)
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- 21 Z/Yen Global Financial Centres Index 28 Business Environment: https://www.longfinance.net/media/documents/ GFCI_28_Full_Report_2020.09.25_v1.1.pdf
- 22 JLL Global Real Estate Transparency Index 2020 (data not publicly available)
- 23 Movinga Best Cities for Entrepreneurs Human Capital in Tech (data not publicly available)
- The Business of Cities research, based on aggregation of number of employees working in digital, knowledge and policy economies as registered on LinkedIn, relative to metropolitan level population. Data from June 2020.
- 25 Startup Genome Global Startup Ecosystem Report Tech Talent Quality and Access: https://startupgenome.com/reports/gser2020
- 26 JLL Innovation Geographies: https://www.us.jll.com/content/dam/jll-com/documents/pdf/research/jll-innovation-geographies-2019.pdf
- 27 INSEAD Global Talent Competitiveness Index 2020: https://www.insead.edu/sites/default/files/assets/dept/globalindices/docs/GTCI-2020-report.pdf
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- 29 Mori Memorial Foundation Global Power City Index Yearbook 2019 Number of International Students: http://mori-m-foundation.or.jp/wordpress/english/publications2
- 30 QS Best Student Cities 2019 University Rankings: https://www.topuniversities.com/city-rankings/2019
- The Business of Cities research, based on aggregation of ranks of each metropolitan area's top (global top 1,000) universities, across STEM subjects (**Physical sciences, life sciences and medicine, and engineering and technology.) Data source: QS Top Universities 2020.
- 32 QS Best Student Cities 2019 Employer Activity: https://www.topuniversities.com/city-rankings/2019
- 33 QS Best Student Cities 2019 Student View: https://www.topuniversities.com/city-rankings/2019
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- 35 StartupBlink Global Rankings 2020: https://www.startupblink.com/startups/
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