



Australia and the Future Cities Agenda: An Essay

**Property Council of Australia:
Future Cities Summit 2024**

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with data and analysis from The Business
of Cities Group



1. Australia Future Cities Summit. March 2024.

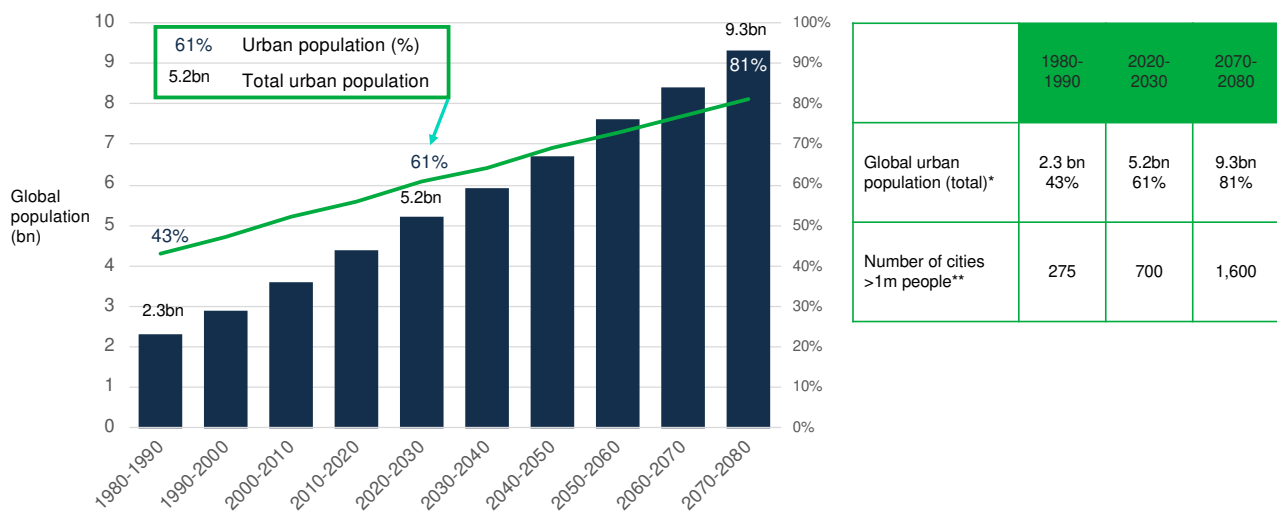
The Property Council of Australia will host its Future Cities Summit on March 27th 2024 in Sydney, NSW. This essay is prepared to support the Summit and has three intentions:

- To introduce the core issues addressed by the Summit agenda in a systematic way, from an outside -in perspective, to illuminate each topic.
- To position Australian experience within a global perspective in order to observe how Australia’s debates and performance sits alongside future cities debates in other countries and cointinents.
- To raise questions that can be debated at the Summit, and more-widely by the Property Council, and its stakeholders.

2. The Future of Cities Globally and in Australia.

For many centuries, adaptive humankind has embraced population growth, new technologies, and the spread of civilisation, by building, and then expanding, or regenerating, cities. Since 1980, this urban trend has accelerated and has unleashed a new 100-year cycle of rapid global urbanisation. This has led nations, companies, and multi-lateral organisations to engage in a conversation about the future of our cities, for the future of our cities is now the future of our species, our civilisation, our planet, and our economies.

A world in ‘peak urbanisation’ means that almost all global challenges also become urban imperatives. They have to be combined with urban and metropolitan systems and platforms. We need to be conscious of where this 100 year cycle leads. We could imagine our world in 2100, when almost 10 billion people will live in about 10,000 cities. We are on an anthropological trek. We are an urbanising species, building a planet of cites.



Source: UN World Urbanisation Prospects.¹

*At end of decade. Data from 2050 onwards extrapolated from 1980-2035 trend.

**At end of decade. Conservative estimate. Data from 2020 onwards extrapolated from 1980-2018 trend.

Australia on the road to 40 million

In Australia, the Federal Treasury published the latest Intergenerational Report in August 2023, looking forwards to 2063. Within those 40 years it is now predicted that the Australian population will grow to 40 million people, up from 27 million today.² This provides an important lens for

focussing upon the future of Australian cities, and for the debate at The Property Council's Future Cities Summit in March 2024. The links between population growth, urbanisation, and property development are already well recognised. The century of cities is also a century of real estate.

Population growth inevitably means increased requirements for investment in infrastructure, housing, workplaces, interchanges, amenities, and facilities. Important choices lie ahead on the shape, character, and quality of Australia's future cities, and the role of physical assets within them. The debate about how Australia accommodates this population growth will necessarily be informed by other policy priorities including climate change and resource constraints, economic productivity, infrastructure feasibility, technology adoption, and spatial development objectives.

Public opinion on the merits of population growth, and preferences about where and how it is accommodated, will be wide-ranging, and an evidence-based debate will be essential. Inevitably, questions about where and how population should grow are linked with different perceptions of costs and benefits of such growth, and they involve the complexity of values, identity, and the wider perceived social contract between citizens and governments.

One obvious set of questions surround the future shape and size of major settlements. Does Australia want to use the predicted population growth to 'break out' from established pattern where just over 60% of people live in the 5 largest cities, or does it want to further concentrate growing populations in these cities? (see section 5).

3. Our new Century of Cities

1980 may seem an odd year to describe the beginning of an urbanising century, but it is more or less the year when two trends accelerated simultaneously.

- First, decades long processes of de-industrialisation, urban decline, and population losses in OECD countries started to reverse, as globalising service industries grew and population movements increased, ushering in our recent cycle of urban revival, repopulation, and regeneration.
- Second, inspired by the experience of the 'Asian Tiger' economies, many more developing nations started to actively pursue the twin paths of industrialisation and urbanisation, rapidly shifting towards manufacturing, building urban infrastructure, and connecting to globalising value chains.

Thus, in 1980, much of the world joined a pro-urbanisation cycle for first time in history. We are now in the 5th decade of this century, and each decade has its own story, dilemmas, imperatives, and innovations.

The Global Future Cities Agenda

Common Challenges.

This future cities agenda does not just imagine a world of hyper competition between 10,000 cities. It also anticipates the common challenges amongst such cities including; productivity, sustainability, affordability, inclusiveness, and distinctiveness. It addresses the ways that new technologies can produce better systems and platforms for urban planning and management, providing enhanced citizen experience, resource efficiency, and system inter-operability and reliability. This creates a significant global market for 'urban solutions' that are tried and tested

in one market, and then shared or exported to others. Australia is already a leader in exporting urban solutions and city building skills around the world, especially in relation to property.

City Making: a Global Industry.

In effect, every city is now an 'urban lab' where new solutions can be forged, adapted, and scaled for adoption in other cities. There is a growing global market in urban services, and such services (including but not limited to urban design, architecture, real estate, infrastructure, planning, housing, transport, utilities, and citizen services) now represent an 'advanced urban services cluster' that are one of the world's fastest growing industries. This cluster increasingly produces specialist technology applications such as PropTech, PlanTech, TransitTech, ClimateTech, GovTech, and more.

New spatial forms?

This future cities agenda also addresses urban form and infrastructure. What is the best way to synchronise, accommodate, and manage population growth and diversification, with economic transition, and climate adaptation in our cities? Is it to sprawl, to densify, to retrofit, or to build new cities, towns, and districts, and which combinations of these approaches in different and distinctive places?

Pandemic accelerator.

The recent COVID-19 pandemic reactivated the debate about our future cities because it exposed the frailty of many current urban models, including the vulnerability of mono-use districts and buildings, the viability of public transport systems, the adequacy of public space (district by district), the challenge and desirability of virtualisation, remote working, and hybrid patterns, and the best means to combine and optimise digital and physical platforms. At the same time, the pandemic unleashed a new wave of adaptive innovations at local and metro level with changes to how streets, public space, buildings, facilities, and amenities are used. Necessity gave rise to new forms of urban invention.

Waves of urbanisation in 10 global regions

In principle, urbanisation is good for us; North America, Latin America, Europe, and Oceania are already 80%+ urbanised. These mature settlement patterns can use the new forces in digitisation and decarbonisation to improve choice and quality of life for millions of people. The Middle East and China are now already 65% urbanised, in Africa and Southeast Asia (ASEAN) 47%, and in India 37%. These are the countries with the fastest growing populations which will see the rapid rises in city making, making use of both new city models and urban expansions.

We will need to build many more cities and urban quarters, the infrastructures that connect them, and the amenities that support them. We will need to innovate to create a revised model of urbanisation that is clean, compact, and connected.

Region	Urban population in 1980	Urban Population in 2080
Greater China	20%	90%*
ASEAN	25%	85%
Africa	27%	80%
Middle East	49%	97%*
Greater India	22%	62%
Latin America	65%	92%
Europe	67%	89%
North-East Asia	70%	92%
North America	74%	95%
Oceania	71%	76%*

Sources: UN World Urbanisation Prospects, World Bank.³

Data for 2080 based on extrapolation from rate of change 1980-2050

*Data for 2080 for Oceania, Greater China and Middle East based on rate of change 2020-2050 due to more strongly changing urbanisation dynamics from 1980-2020

Rapid urbanisation should be not feared, rather it should be embraced, shaped, and managed with a Future Cities focus. Successful urbanisation is the key ingredient in building modern societies that can serve people's needs, inspire human endeavour, and reverse our planetary peril.

Urbanisation creates opportunities for people and families to improve their quality of life through employment, education, and healthcare. Cities make our workers more productive, our companies more innovative, and our capital more efficient. Cities that are open to trade and cross border investment also become open to people, ideas, and difference. These are substantial advantages when it comes to productivity, creativity, and quality of life, that also drive innovation in our cities. They can increase our connections, accelerate our inventiveness, and raise our ambitions.

The core systems of cities such as energy, utilities, waste, water, transport, land use and property, logistics, and a wide range of citizen services, make our daily lives work. These systems have evolved rapidly during two centuries of intensive fossil fuel usage. Now, in our time, we must transition these systems into new forms of sustainable energy so that we reduce global warming, clean our cities, and start to protect our precious biodiversity. Cities are the means to reverse climate change.

Good urbanisation vs. bad urbanisation

We should not think of 80% urbanisation as a kind of natural peak. Many countries have much higher rates; Singapore and Hong Kong, as well as Japan, Korea, Israel, and the Netherlands are all successful nations with more than 85% of their population in cities. Most of these 'peak urbanisation' countries have learned that success requires investment in high-capacity transport to support medium-to-high density living and working, in organised networks of places

(poly-centric cities, metro areas, city regions, regions of cities and towns), fostering the critical mass to underpin cherished amenities and to tackle climate peril.

So, the choice we face is not whether to have urbanisation, but how to ensure we get good urbanisation, not bad. This means investing effectively in the 'carrying capacity' of cities and accelerating 'urban innovation.' This good urbanisation requires that infrastructure, utilities, and amenities be expanded and enhanced as populations grow. We must avoid bad urbanisation where population growth exceeds that capacity. That is when we experience congestion, pollution, high carbon emissions, poor air quality, extreme heat, loss of biodiversity, inflated house prices, and systemic inequality.

Future Urbanisation needs Urban Innovation.

We are now approaching the mid-point of this century of cities. As we grow our population and seek to accommodate more humans through urbanisation on our finite planet, a global quest for future cities that embrace urban innovation is unfolding.

Cities are already the laboratories of human discovery and invention. It is within cities that great breakthroughs in Science, Medicine, Astrology, Energy, Engineering, Navigation, and Philosophy have been made. Cities are also the engines of innovation in how we live, work, travel, and create together. Fundamental innovations that we now take for granted, such as homes, offices, shops, sewers, gutters, water closets, busses, trams, underground railways, lifts/elevators, and tall buildings, as well as libraries, hospitals, police forces, fire fighters, schools, stations, airports, ports, and sports arenas, are all innovations fostered by the growth of cities.

4. Cities post-pandemic: a new era of urban innovation?

For the Future Cities agenda, the recent COVID-19 pandemic has been a driver world-wide. The pandemic both shifted our viewpoints, accelerated some trends, and abruptly halted others. We view the pandemic as both a public health emergency and a substantial economic and fiscal shock, but it also makes sense to see it as a catalyst of social, spatial, and political change, and a driver of innovation. We might observe there are the 6 drivers of change inherent in the pandemic that have far reaching effects on cities, our people, and our social contract. We might see it like this:

- i. **The pandemic closed borders**, it was not just that tourists, convention attendees, and international students did not travel for a time, but rather that an abrupt break was placed on normal patterns of migration. People were allowed to leave cities to move to their wider regions (a normal process every year), but they were not replaced in the usual ways by international in-migration. The pandemic momentarily led to reports of city populations actually declining, sowing the seeds of media doubt (especially in the USA where there are high levels of population mobility and technology adoption). Three years on from the pandemic it is no wonder that migration is now back at record levels in many cities.
- ii. **The pandemic found the risks in global supply chains**. What is sometimes called 'deglobalisation' is a process, accelerated by the pandemic, where it was revealed that global supply chains may be highly efficient, but are not necessarily shock resistant, or resilient. This has triggered a new cycle of reshoring and near-shoring for certain (strategically important) goods and services (such as medicines, technology, energy) and coupled with new geo-political tensions (US-China Tech/Trade War, Russian Invasion of Ukraine, Middle East) and new efforts to reboot and decarbonise economies (IRA in USA,

China's Green Plan, and the EU Green Deal). This shift towards revised global trade and green reindustrialisation is set to define the next cycle.

- iii. **The pandemic accelerated digitisation.** It is clear that the massive growth in working from home, online retail and consumption, distance learning, remote medicine, and e-services is indeed the great acceleration it has been defined and reported to be. While these digitised systems take a much larger share of their market than before COVID-19, there is much less clarity on how the longer-term effects will play out on office use, labour productivity, job security, public transport, shared amenities, education and health, retail and consumption habits, and the socio-economic geography of our cities overall. At the more direct level, the growth of data centres, suburban co-working spaces, urban logistics hubs, fulfilment centres, dark kitchens, and storage or collection facilities, represent the new spatial forms of this digitising economy. The digital economy has a massive physical footprint.
- iv. **The pandemic revealed massive health inequalities.** As we know, the people who suffered most were those with pre-existing health conditions. People who live in poor quality housing, or have jobs that require face to face working, or lack of natural light and green space, or are dependent on care services, all suffered more than most. Each of these attributes are often directly associated with low incomes and inequality. Our cities, it was revealed, had been harbouring much deeper inequality than had been previously recognised. The pandemic revealed it.
- v. **The pandemic underlined the link between human and planetary health.** There are many ways in which the pandemic made the climate emergency more obviously urgent. The recognition of human eco-system risk, and possible collapse, provided a space in which we could recognise that our delicate natural systems, including most obviously our food security, are vulnerable to human behaviour. The fact that people who breathe poor quality air, and have associated respiratory conditions, were more vulnerable than others, made the imperative to improve urban air quality more real and urgent. The additional risks that came from fuel poverty, over-heating, or energy inefficient homes, created a powerful mandate to address our eco-system collapse, in order to reduce our collective exposure to illness.
- vi. **The pandemic revised relationships between citizens and governments.** It is almost an obvious comment that Governments sought to take control of citizens lives during the pandemic in multiple ways. The mask wearing, lock downs, travel bans, closed borders, social distancing, household bubbles, tracking and tracing, certified / compulsory vaccination, and much more, created a regime that many had not witnessed before, akin to a war time. There were, of course, oppositional voices, from sceptics, libertarians, alternatives, and others. All of this increased the role of Government in our personal lives, and has left a lasting sense of the force of state power, and great concern about how that power is exercised, and what the checks upon it might be.

These cycle defining changes that the pandemic fostered, or accelerated, are still playing out in secondary effects in our built environments, and we observe new contours each week in the shape of population shifts, the relocation of firms, the emergence of new formats, and the adaptation or abandonment of forms of land use previously dominant (in different markets there are changes for physical retail, office districts, convention centres, schools, and many more).

One interesting feature of the current moment is that there is very little national debate in any country about whether the changes that have been triggered by the pandemic are ones that should be assessed and addressed directly by policy interventions.

For example, there seems to be no real national debate on whether ‘working from home’ (one of the accelerated changes) should be encouraged or discouraged and for whom, where, and by how much? Does increased working from home bring different advantages and disadvantages for people with distinctive roles, and at diverse points in their working lives? What are the different rationales by sector and/or role? Should working from home be seen as a right, an obligation, or as a discretionary option? Over time will it increase or decrease job security, and for whom? Can the advantages of cities driven by proximity, interaction, and shared platforms, be maintained, or even enhanced, with greater virtual working? Or will they be eroded?

These changes also have very unequal effects on people who live in cities. They offer different combinations of opportunities and challenges depending upon job types, business location, poverty, wealth, and the structures of advantage and disadvantage.

Although the debate is limited in most countries, major decisions are impacted by the trends. For the Property and Infrastructure sectors these shifts, and the degree to which they represent permanent changes rises critical issues for both sunk investments in existing assets, and for future investment requirements and viability. One reason there are such big debates about the future of physical retail, the adaptability of office districts, or the retrofitting of many types of building is that such decisions involve financial and other risks, and are also dependent upon policies and incentives that are needed to support transition, for example in the planning or zoning system.

A good example of this is land use planning and zoning. It is clear that one important impact of the combined effects of the pandemic is to require greater adaptability in buildings. But an important limitation is the extent to which such adaptability is allowed by planning and zoning rules. Across the developed world there are increasing attempt to improve flexibility in planning codes whether by offering exemptions and exceptions, or by taking controlled experiments, or by amending the code through legislation.

3.2 A driver of agility and urban innovation?

The interaction between these processes of change, cities and communities is not one-directional. The pandemic also had the effect of encouraging and facilitating new kinds of action. For example, city leaders encouraged agility in the ways that cities are managed by reworking streets and public spaces.

Businesses innovated in both how they helped people stay productive, and also how to get them back together again. Neighbourhoods provided mutual support and rapidly created new social networks.

Place leaders in commercial districts, parks and green space, and open land, created new offers, codes, and activation to encourage people to find safe shared places again. The pandemic also fostered other new forms of agility, and revealed new depths of social capital. It was this social capital that made the pandemic more bearable and hopeful that it would have otherwise been.

It was the agility that it enabled that gave us some insights into how the new cycle of future cities might play out. To put it most simply, the pandemic created the mandate to manage our cities differently and this increased our urban agility in ways that can fuel new urban innovation.

3.3 The emergence of the post pandemic city

The combined effect of these six drivers of change is that our cities, and our built environments, are living out a strange process of unpredictable change. It is not just that these six drivers are forcing other changes in, for example, population size and settlement patterns, location of jobs, viability of services and infrastructures, consumption habits, the new weekly sequence of the city, and the future channels for service provision. These changes are also made more complex, by uncertain and unsynchronised timings between markets and sectors, competition dynamics between cities, and between places within cities, and by the apparently different process of change emerging in distinctive parts of the world.

For example, just as North American cities are saying they need to get used to significant populations moving to third tier cities and the CBDs of the larger cities being sometimes cited as 50% empty, so in China, Lat Am, and the Middle East we see the return to the city centre at greater levels than pre-pandemic.

Cities face a challenging task to adjust to new behaviours and demand, re-orientate towards new mandates, and find a new basis for agreement about how a post-pandemic city can both thrive and be fair for everyone. Typically, we observe cities all over the world seeking to simultaneously address challenges with very different time frames and geographical scales. From how to re-orientate Central Business Districts towards new demand patterns, to how to maintain public transport with lower ridership overall or on certain days, to whether to change the timings of the school week, and how to keep people safe at work. In cities these debates are alive, but there is limited shaping of the discourse nationally.

3.4 The Century of Cities and 'Property as a Service'.

Prior to the pandemic, the property industry was already in a rapid cycle of innovation and reform driven by factors that included climate, technology, and the changing orientation and preferences of investors, users, and regulators. As advanced nations moved towards a focus on climate and quality of life along with the innovation, experience, circular, and sharing economy models, the expectation of what property could provide evolved rapidly. At the heart of this are changed relationships between investors, developers, operators, users, and customers/visitors. New dynamics have evolved where a focus on the quality of the user experience is now more prominent. The balance of responsibilities to manage risks and secure returns is now being continuously reworked, for example in tenancy agreements, which are reshaped by a richer understanding of the partnerships required between operator and user.

The growth of technology applications in property have been wide-ranging. They include the switch to more energy efficient systems and/or different sources of power. The use of AI to guide a range of processes from investment decisions to building management, the use of new forms of data capture and management to better understand the dynamics of place usage and building design, the increasing role of user experience of a building to foster advantage, are all key new dimensions. This has led to the observation that the property industry is in a rapid shift from being an asset management business to being a service, product, or experience provider. 'Real Estate as a Service' or 'Experience' underpins the idea that the purpose of the industry, and the relationship dynamics within it, are changing profoundly.

The century of cities, and the emergence of post-pandemic cities, represents an important set of additional drivers and impulses for the Property Industry today. These might be summarised as:

- i. **Growth and Spatial Form.** Most countries now face the issue of how to adapt to faster rates of growth and change in cities, where greater anticipation, forward thinking, and pre-

emptive investment is now needed to avoid failure. A key dimension of this surrounds the future planning of cities, and, for example, where to accommodate population growth, or specialist economic activity, with an emphasis on the different roles of major cities, associated 'next tier' cities and towns that can be better networked together, or the role of wholly new developments. The future shape of cities is much more today about clusters and networks of cities and towns together, than about individual places. Within cities there is renewed focus on polycentricity and localism, and within larger regions the focus on multiple centres networked together.

- ii. **Housing.** Allied closely to this is the global debate about how to tackle the housing supply and affordability crisis that most major economies now face. The debates range from how to amend planning systems to speed up approvals and make more land available for housing (with penalties for approvals that are not acted upon quickly), to how to incorporate new technologies and modes of manufacture to accelerate and diversify production channels. In many countries these fresh approaches now also include a focus on the types and tenure mixes of housing being constructed with an emphasis on diversification, and the renewal of the role of public investment in public, social, and affordable housing models.
- iii. **Good Density.** Closely related to these debates about the future shape of growth, and the focus on housing, are the issues of how to optimise sites and locations that already benefit from infrastructure connections, utilities, amenities, and other locational advantages, within our cities. By addressing both the mixture of uses and the combinations of activities, along with the total built form we see a progressive debate about what good density or liveable density looks like and how the more intensive use of our land can become acceptable or desirable to citizens.
- iv. **Technology.** As described above, technology has rapidly become an important dimension of how the property industry develops to meet the future cities agenda. Increased application of technologies platforms to building construction and management is one key area. Another is the role of digital technologies in the planning and design of cities, including the rapid growth of digital twins and AI in planning processes. A third are concerns how buildings and districts are now understood (with digital systems providing new real-time data and metrics) and the ways these enable more dynamic management of space and place. At the same time, the growth of new materials and sources of power, and the rapid rise of their applications in the built environment, has created new options and investment choices for an industry that knows it needs to lead.
- v. **Hybridity, experience, and the sequence of the city.** The growth and use of digital technologies has the power to sequence our cities. This means that the more is a choice between physical and virtual modes for the transactions and exchanges that make up our daily lives, the more the combinations of physical and digital can be myriad. This leads to three rather different imperatives of the property industry. Firstly, understanding the nature of hybridity and the multiple forms it can take is essential to planning and designing future buildings. Second, there are particular physical space requirements that emerge from a more digitised and hybrid world, including the data centre, dark kitchen, and co-working spaces mentioned above. Third, in the balance between the call of physical space over digital domains where they compete directly, the physical space must now offer an experience premium that is not available online. Forth, physical space must optimise its own of digital platforms to create that compelling experience and motivation. Fifth, the unlocking of some people the fixed pattern of the daily commute, the weekly shop, or the regular visit to the service provider leads to the opportunity to re-mix what happens in the city. This is a call

towards agility of buildings, enabling them to provide different offers and experience at different times of day, on different days of the week, and for different seasons of the year.

So, the Future Cities agenda world-wide contains important driver of the property sector. It provides a context in which to understand the future demand for property, and it also shape key discussion and debates about how the property sector will emerge as a sustainable adaptive, intelligent, and agile industry over the next decades, as well offering insights about the future locations of growth and investment.

5. Future Cities Australia.

In Australia, the Future Cities agenda has been active for many years. The famed quality of life in Australian cities has been a long-term source of pride and promotion for Australia, attracting migrants, students, tourists, corporates, and other forms of investment in magnetic and compelling combinations. Rapid Australian population growth, coupled with economic transition, and climate imperatives, have revealed a stark set of challenges for how Australia can anticipate the longer term effects of this continued growth and change. This will require the ability to plan for cities that will grow much faster than in the past, and with more specific economic and enterprise requirements, different forms of connectivity, and more challenging dilemmas to resolve.

As a consequence, detailed analysis, and continuous debate, about about the best ways to help Australian cities evolve has been in train for 2-3 decades. This 'Australian Future Cities' agenda initially attended to key questions about housing, regeneration, and infrastructure. More recently it has embraced questions such as migration and settlement patterns, affordability, inequality, metropolitan and regional population growth and planning, accommodating, and adjusting to new economic and innovation activities, new energy systems, urban resilience, and addressing climate change.

In particular, this has raised questions about whether the vernacular models that became part of 'the Australian Dream' where suburban life, with large 'owner-occupied' single family homes, heated and cooled by fossil fuels, with substantial private space, and car oriented travel patterns, are really desirable, viable, or sustainable in a future Australia of 40,000,000 people. Thus, a key focus of the debate in Australia is about how to transition from over-dependence on this dominant single urban model, towards multiple others, that might, in combination, be more future proof.

4.1 Imperatives for Future Cities in Australia

We can chart the overall performance of Australia's largest cities in the most recent period of time (past 5 years) by using the widely published comparative data sets that are now easily available. These data sets are not yet highly reliable because they suffer from multiple methodological challenges, and they have the tendency to compare city performance and perception without commenting on the unique conditions within each nation or location. Nonetheless, they do give us a point of reference for discussion at the Future Cities Summit.

Overall, during this period of the recent 5 years as the world has been urbanising, and Australian Cities have withstood the pandemic and also grown rapidly, the trends suggest that Australian cities have made significant improvements on infrastructure and innovation outcomes, but these have been coupled with:

- Decreases on liveability, as growing unaffordability outweighs improving inclusivity.

- Erosion on amenity and sustainability due to poor quality of life in many low quality urban extensions, and not yet well connected or facilitated suburbs.

Australian cities have, overall, slightly fallen across the full suite of global city benchmarks. Perceptions of Australian cities have fallen the most. This has largely been driven by concerns about affordability, climate change response, resilience/vulnerability, and openness.

Australian Cities versus The Rest of the World Cities over past 5 years:

	2018	2023	
Median Global position, all rankings	40 th	45 th	▼
Median Global position, perception studies	21 st	32 nd	▼

Source: The Business of Cities research.⁴

This does not mean that Australian cities are actually becoming worse places to live and work overall, although that may be true for some portions of the population, but rather that other cities are improving faster than Australian Cities, and it is likely that this reveals that the established Australian urban model may be slower to adapt to change than those in other countries.

How are other cities progressing faster than Australia?

How are other cities improving faster than Australian Cities? There is no one set of clear answers to this. We can make some general observations from global practices:

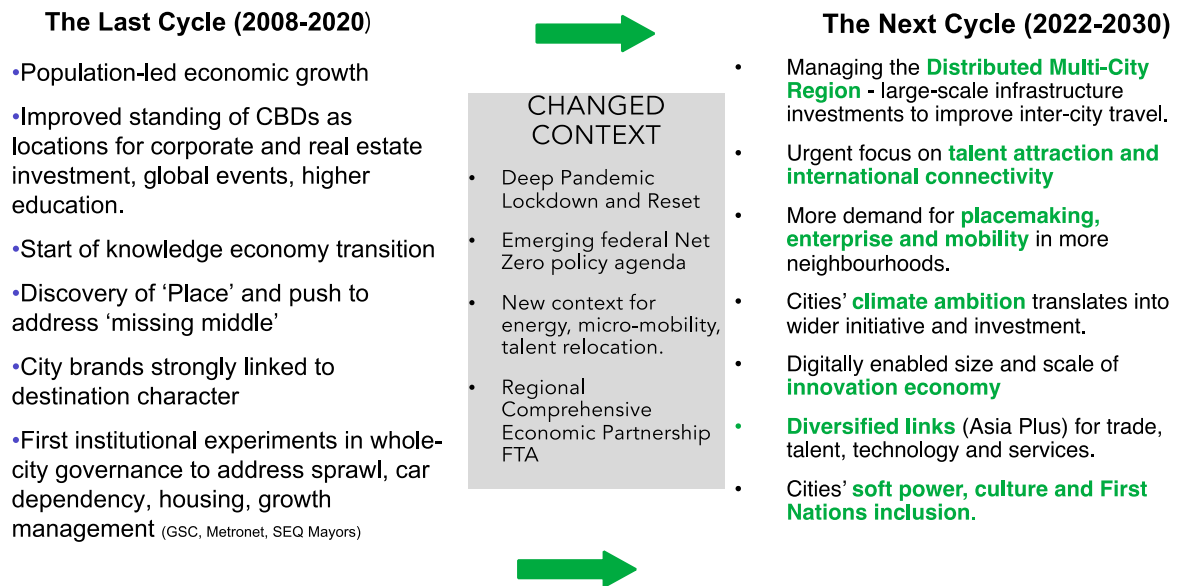
For the majority of world's high quality of life cities, the combination of rapid population growth with both economic change, and climate transition, has been challenging. Notably, the world's successful cities have all become more expensive places to live and their concerns about housing supply and affordability across many parts of the world. This is giving rise to multiple ways to tackle the urban affordability crisis that has taken distinctive directions across different markets. The approaches include but are not limited to:

- Adopting new policies and incentives to improve public health and productivity by **reducing car dependence** in cities, including expanding public transport, increasing active travel, and reducing demand for travel through digitisation and relocation, or increasing the costs of car journeys.
- Expanding the feasible locates of **increased housing supply** through infrastructure investment and/or new cities and towns, as well as optimising the potential of urban regeneration.
- Diversification of **types and tenures of housing**, moving away from a presumption of owner-occupation, and building to multiple alternative formats.
- **Retrofit and planning flexibility** to ease use-change processes where they are feasible.

- Although there is no absolute global consensus there are significant **increases in faster rail connections** between high quality of life cities, and **within multi-centred metropolitan regions** in severable part of the world (notably China, Europe, Latin America, and the Middle East).

Australian cities are still catching up after several decades of low infrastructure investment in urban and metropolitan transport, and this historic deficit is still playing out despite the recent decade of investment.

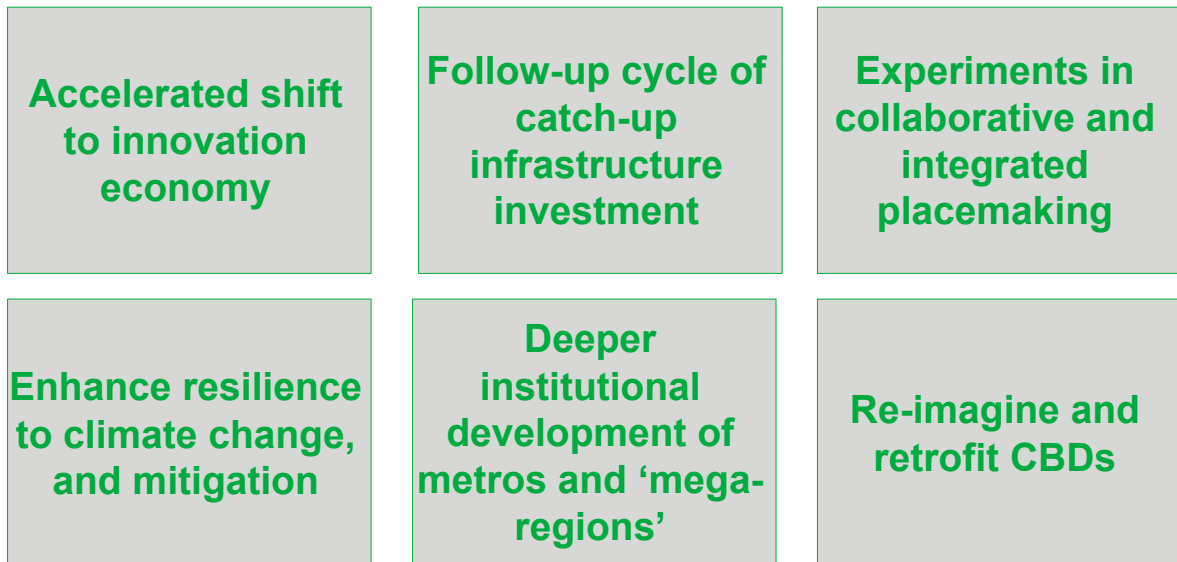
4.2 Australia’s emerging Future Cities Agendas.



More precisely, we can now begin to trace how the agendas for Australia’s cities are evolving to embrace a distinctive set of new imperatives for the next cycle (approx 2024 to 2030) and how these differ from the last cycle bounded by the GFC and COVID-19 (2008 to 2020).

We can observe that many aspects of the Future Cities Agenda highlighted above are beginning to become part of the Australian agenda where the switch is towards combining the investment in the bigger systems that shape our cities with the complex task of stimulating and managing the quality and diversity of what the cities offer.

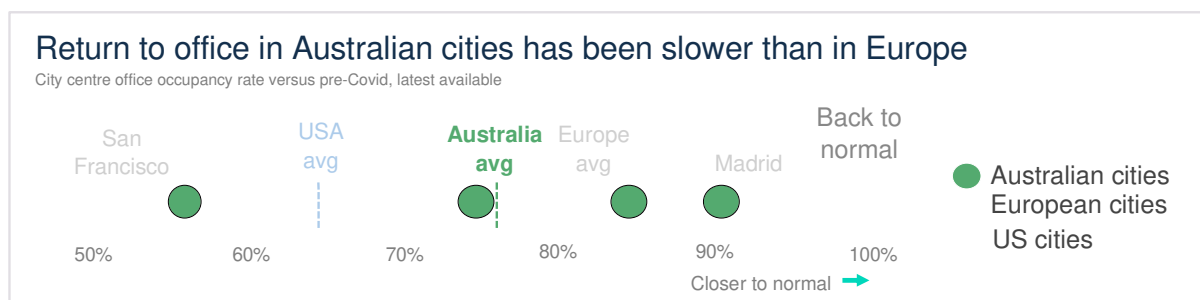
This results in some clear goals and agendas for Australian Cities for the next decade building upon the momentum generated in recent cycles but accelerated by COVID-19, increased climate awareness, business and industry progress, and new Government policies. These are summarised in the chart below:



As we can see these six agendas are key to supporting Australian cities to make sense of the post pandemic acceleration and to better positioned for future growth and success.

4.3 Post-Pandemic Trends in Australian Cities.

One key indicator of post pandemic trends is the ‘return to the office.’ Across the world a huge divergence of practices have emerged. In most of Asia, Latin America, and The Middle East a rapid return to office working has been observed. The variation between countries and regions reflects a combination of factors such as speed of business growth, sector mix, job security, cultural preferences, home amenities, labour mobility, propensity to move homes, housing affordability, and commute times/costs, as well as technology adoption rates. The key outlier in the slow return to office has been the USA, where occupancy rates remain very low. In Europe, a rapid return to office working has been in train for some months, with hybrid work options utilised to varying degrees.



Sources: [Savills](#), [CBRE](#) and [Center City District](#)

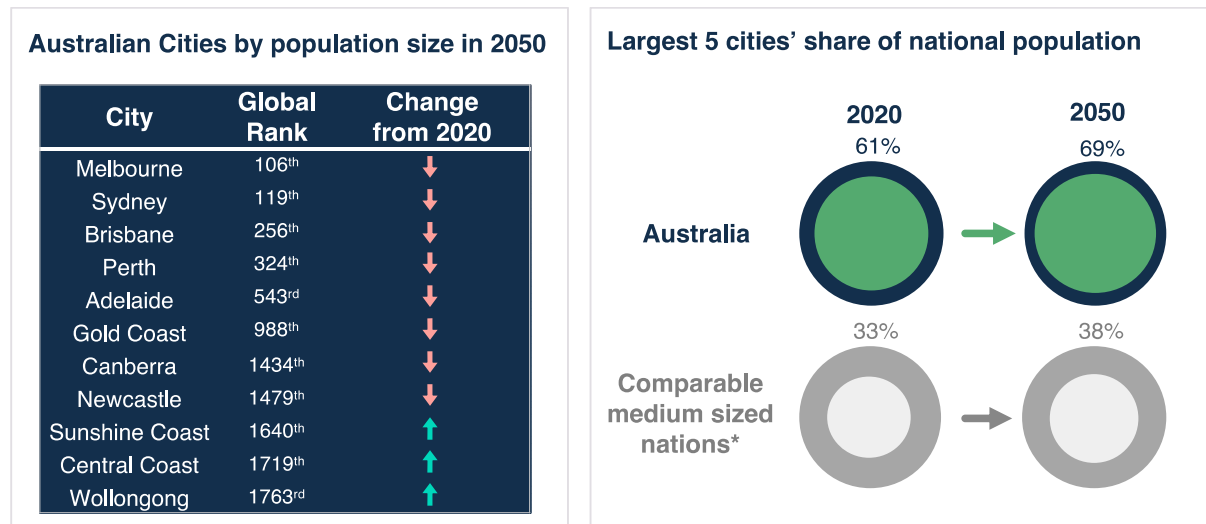
*Versus selected relevant European and US cities for which latest comparable data (Q2-Q3 2023) exists: Dublin, London, Madrid, Paris, Prague, Stockholm, Warsaw, Boston, Los Angeles, Phoenix, San Diego, San Francisco

As of late 2023, office occupancy reached 75% back to normal in CBDs of Australia’s big 5 cities.⁵ This puts Australia ahead of US (65%) but still behind Europe (80-85%).⁶ There are also notable differences between Australian cities, with stronger polarisation than in other nations. The gap between Melbourne and Perth, for example, is larger than between San Diego and San Francisco. This may reflect the sector mix of the different Australian cities and the different propensity for remote working across sectors.

4.4 Population, Migration, and Settlement

Australia’s population is already highly concentrated in its major cities, the question is whether these cities can evolve to accommodate much larger potential populations to 2063, and what combinations of city expansions and densifications may be required, coupled with population growth in other centres and the rise of the multi-centred regions with larger and smaller cities operating together as combined housing and labour markets.

The share of population in Australia’s largest 5 cities was at 61% of 25.5 million people in 2020, rising to 69% of nearly 33 million people in 2050.⁷ So Australia’s largest 5 cities are likely to gain over 7 million people in the next 25-30 years. How will they accommodate such growth?



Source: [UN World Urbanisation Prospects](#) and [World Population Prospects](#). Latest city population forecasts from 2020 to 2035 extrapolated to 2050 using GROWTH formula. 2050 national forecasts based on UN medium scenario
 *Comparable medium sized nations: Spain, Canada, South Korea, Netherlands

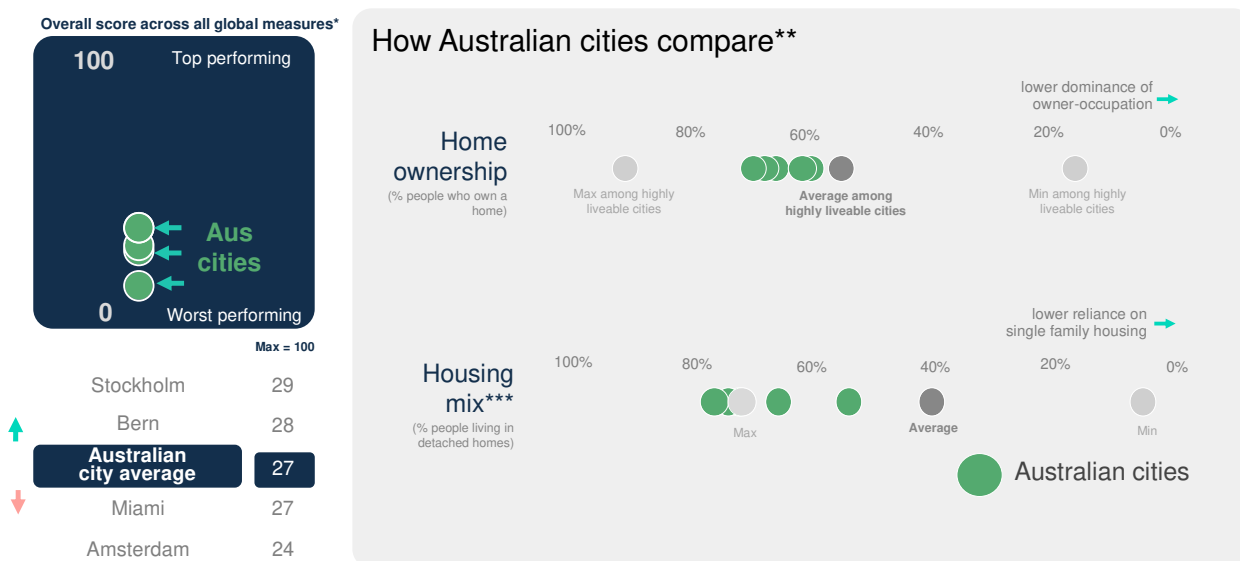
At the same time, the chart on the left shows the global rank of Australian cities by population in 2050. Many cities will grow fast but see their global rank decline due to faster growth of cities in other countries, especially fast industrialising/urbanising countries.

However smaller Australian cities that are close to larger cities will see both their populations and their rank position increase as they take up more of the population growth within the most dynamic urbanised regions. They will benefit from capacity increases linked to regional transport infrastructure.

4.5 Housing and Affordability

Australia’s recent record of home-building is already significantly behind its population growth, which will now accelerate, and risks a permanent housing deficit that would undermine the economy and quality-of-life promise. One key focus is on diversifying the types of tenures of new homes to dilute the dependence on single family car-dependent lifestyles.

Australian cities' housing in international measures*



*Calculated using an ELO algorithm that computes aggregate scores across 10+ benchmarks of performance against 330 other highly globalised cities according to the GaWC group.

**Against a basket of relevant highly liveable cities (see Appendix for list). Average refers to average across these cities and measured Australian cities.

***Data for following cities based on national proxies (conservative maximums based on average of among all households in cities in the nation): Amsterdam, Barcelona, Berlin, Stockholm, Vienna, Zurich

Sources for individual metrics: The Business of Cities research, based on local statistical agencies & Knight Frank.⁸

By global standards Australia is an international outlier for how few residents in its main cities live in apartments, and also in terms of how many dwellings are owner occupied. For many decades, Australian national and subnational housing policy has prioritised home ownership as the dominant tenure.

This means that, compared to other OECD countries, the diversification of housing supply and tenure has only more recently become a policy aspiration. This embedded dependence on owner occupation is increasingly viewed as incompatible with modern urban labour markets. Not only are cities' populations younger and more diverse than in the past, the entry level for owner occupation is now much more prohibitive than renting. In addition, owner occupation can distort price signals in the rental market and generally favours land-intensive development that makes it harder for cities to achieve 'good density'.⁹

All of Australia's big 5 cities are in the 25% most unaffordable cities globally, across all metrics, and are in bottom half among major English-speaking cities specifically for homeownership unaffordability.¹⁰

What is the global future cities agenda on housing?

The wide range of social, economic, and environmental effects linked to chronically unaffordable housing has prompted renewed efforts from some of Australia's peer cities and their higher-level governments to find novel ways to cut through the issue. There is almost no OECD country that does not now have more pro-active policies to address housing affordability. Measures taken include mandatory inclusionary zoning, build-to-rent, auxiliary units, public housing, 'forced' savings, optimisation of public land, employer led housing and much more.¹¹

- These approaches span everything from overdue policies to support gentle density in areas zoned for single family homes in the 'missing middle' (e.g. Toronto), to optimising available

public land and infrastructure for housing (e.g. London, Brussels, Miami), to improving the trust and coordination among those responsible for delivery (e.g. Amsterdam).

- The shaping role of public transport and 'transit/transport oriented development' plays a central role in opening up new locations for housing development, or for a more optimal mixed and intensification. Previous failures to optimise development at transport interchanges is being redressed with retrofitting developments at major station and interchanges (eg New York, Madrid, Paris, Santiago de Chile).
- In many cases there has been a renewed focus on public investment in both pure Public Housing, and in mixed tenure housing developments (Singapore, Vienna, Hamburg).
- Specialised housing development such as student housing (eg in Netherlands) and senior housing (eg in Canada) have been encouraged in order to avoid these segments competing for housing in the general market.
- Rent controls have recently been widely adopted in Spanish Cities (including Madrid and Barcelona) often alongside measures (usually legislative) to reduce the number of homes that have been 'redeployed' as tourism accommodation through platforms such as Air BnB
- Build to Rent has expanded rapidly as a mechanism both to increase housing supply, aid housing market optionality, and meet investor demand (eg in USA, Canada, UK, Ireland, Netherlands).

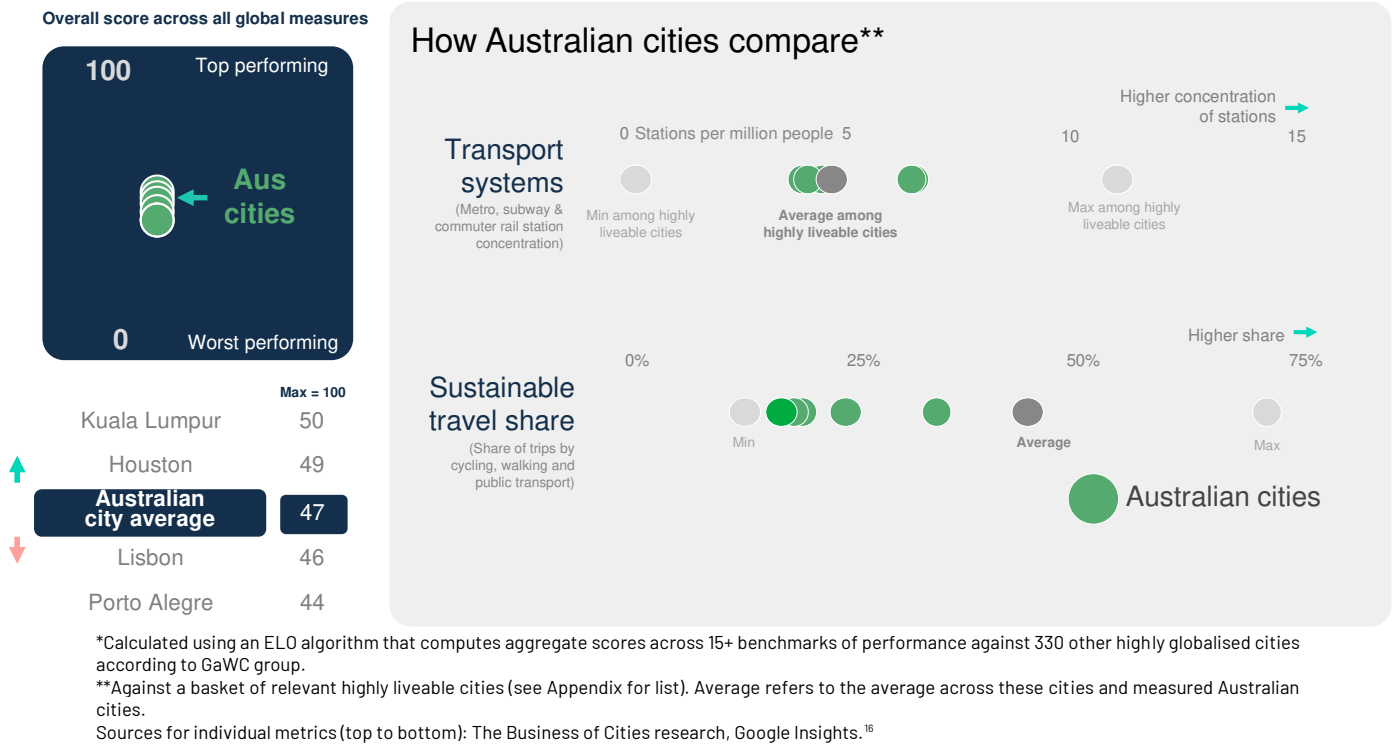
These are just some of the main policies and innovations being pursued.

4.6 Connectivity, Mobility and Transport

The magic of any city is connections and opportunities. Australia's massive transport infrastructure investment of recent decades requires it to accelerate the place-based opportunities for connected living and working. Combined with digital technologies and platforms, new high-capacity transport systems allow us to re-make our cities around vibrant, dense, and mixed use hubs that optimise land use, expand human choice, and contain carbon emissions. So where in the world is it being done right and what are the best governance models to deliver transit oriented developments in Australian cities?

On average across Australia's biggest cities, 80% of trips are still by car, and congestion is forecast to cost nearly \$40bn annually by 2031.¹² Despite the recent and current upswing in infrastructure investment, Australia's biggest cities do not yet have the station access of most other highly liveable cities (see chart), and they are in the bottom half for long public transport commutes.¹³ Easy access to public transport has fallen behind other highly liveable cities; somewhere between a quarter and a fifth of residents have public transport within a 5-min walk, compared to more than half to comparable cities in Europe.¹⁴ As a result residents' satisfaction with public transport is lower than in other comparable liveable cities.¹⁵

Australian cities' connectivity in international measures*



What is the global future cities agenda on Transport, Connectivity, and Mobility?

Cities globally have started to recognise that the capacity and quality of public transport is key to expanding housing supply, addressing affordability, encouraging densification to accommodate population growth and economic transition, and the decarbonisation of journeys. This is recognised by cities taking measures to use transport and connectivity to address wide ranging issues.

- Expansion their public transport network across the whole metropolitan area, and improving suburb-to-suburb links. (e.g. Singapore, Dubai, Riyadh, Paris, Stockholm, London, Denver, Miami, and Bogota). Projects like Singapore Circle Line, Grand Paris Express and London Overground have been important to creating alternative jobs hubs and connecting more people to them.
- Integrating public transport modes to make it more affordable and convenient (e.g. Dubai, Helsinki, Manchester, Madrid, and Toronto).
- Introducing car-free zones, repurposing some roads, and buildings, to support active mobility. (e.g. Singapore, Santiago de Chile, New York, Paris, Oslo, and London).
- Congestion pricing, road user charging, pollution charging to reduce car journeys and to penalise high polluting vehicles (Tokyo, London, Oslo, and Seoul).

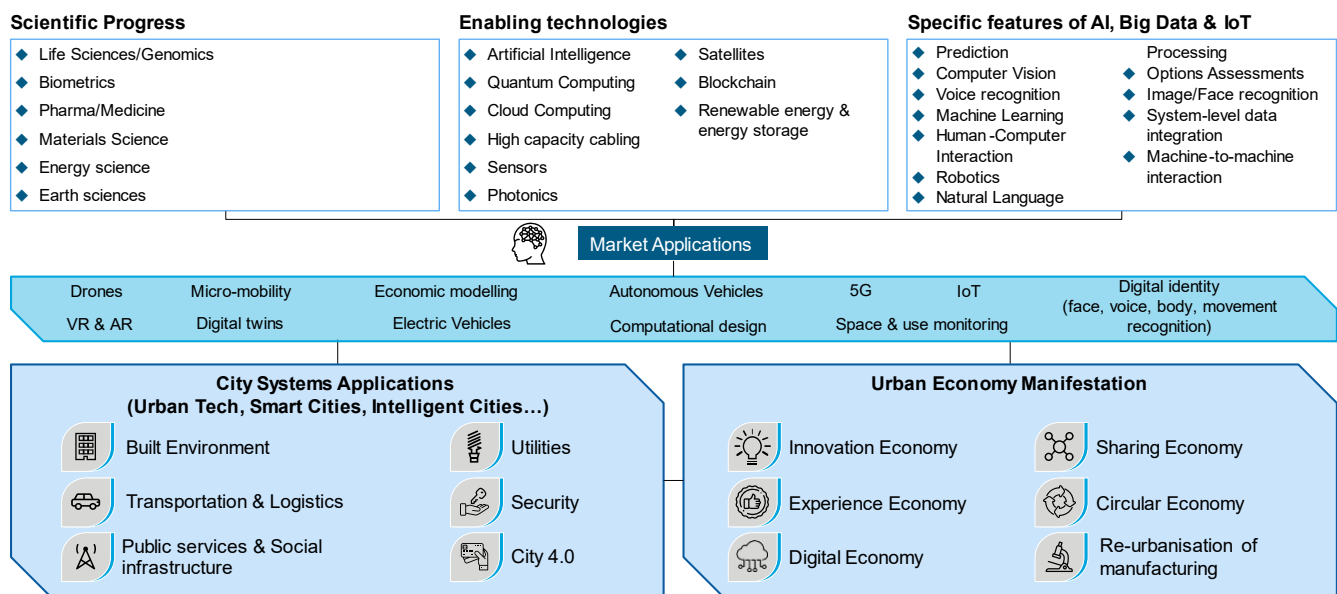
4.7 Technology Optimisation

New waves of technology covering digital platforms, AI, IoT, Digital Twins, Cloud Computing, Life Sciences/Genomics, and Climate Science, are fostering two forms of fundamental progress in cities.

The first concerns how cities are organised in terms of built environment, transport, utilities, and new sources of energy. These enable us to make cities more productive, efficient, environmentally frugal, and provide enhanced citizen experience.

The second is the way that technologies are fuelling urban economic transition by enabling the innovation economy, circular economy, sharing economy and experience economy.

Technology creates a highly integrated environment



10

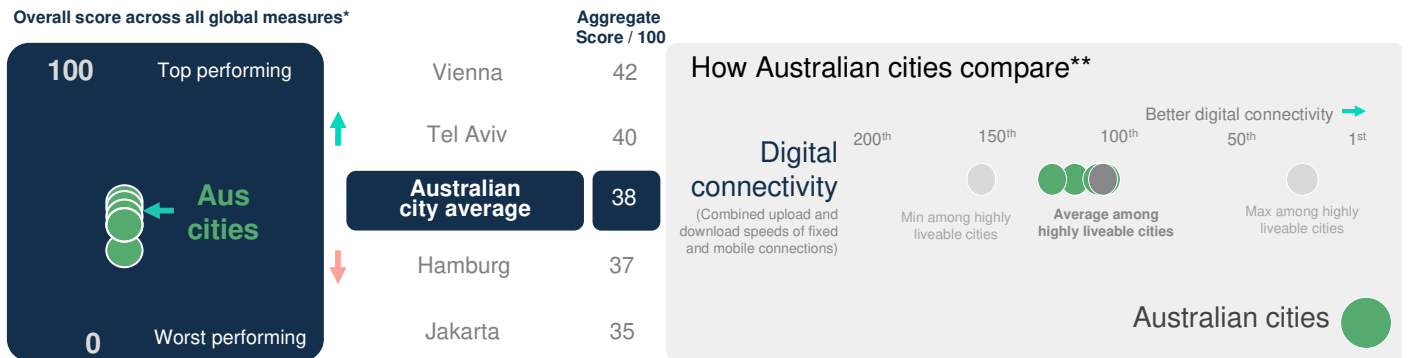
Source: The Business of Cities research.

Australian cities have a mixed picture on technology optimisation.

Sydney and Melbourne are in the 25% globally for mobile broadband speed but fall to the bottom 50% of cities when it comes to speed of fixed broadband.¹⁷

Australian cities are yet to stand out for the impact of technologies on residents' quality of life. Sydney, Melbourne and Brisbane rank 51st, 57th and 74th respectively for the technological provisions and services available to residents.¹⁸ Brisbane performs better for the technology infrastructure already existing in the city.

Australian cities' technology optimisation in international measures*



*Calculated using an ELO algorithm that computes aggregate scores across 10+ benchmarks of performance against 330 other highly globalised cities according to GaWC group.

**Against a basket of relevant highly liveable cities (see Appendix for list). Average refers to the average across these cities and measured Australian cities.

Source for digital connectivity measure: HSE Innovation Cities Index.¹⁹

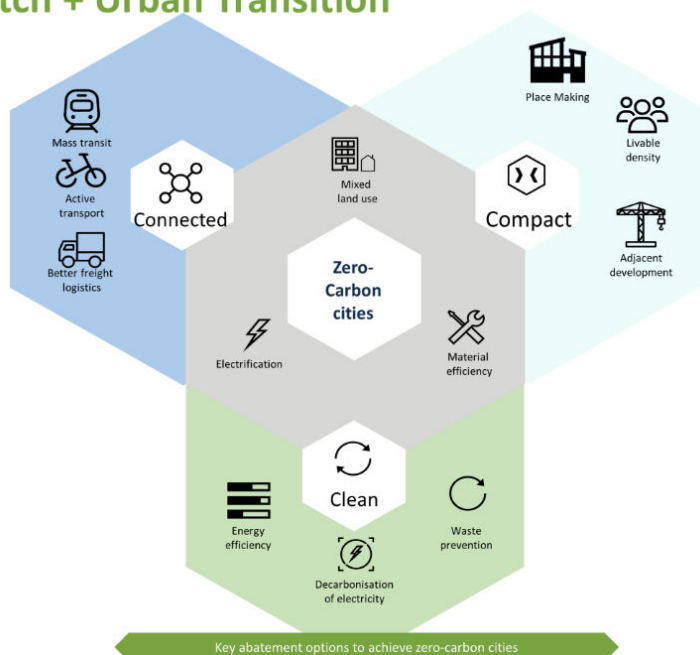
On average, less than 2/3rd of residents surveyed in Australian cities (Sydney, Melbourne, Brisbane) believe that existing internet speed and reliability meet their connectivity needs, vs 70% on average among 140 global cities.²⁰ Many initiatives brought by Australian local governments would benefit from being expanded at metropolitan/regional scale. An example is Adelaide, where a 10 Gigabit fibre-optic network is being rolled out in 1,000 buildings across the CBD and North Adelaide.

4.8 Decarbonisation, energy switch, and urban transition.

At the global level there is a fast emerging agenda on the role of cities in tackling climate change. Work by the OECD, UN Habitat, World Bank, C40, ICLEI, Coalition for Urban Transition have highlighted the key need for Cities to recognise that they concentrate the activities that produce climate change and contribute to global emissions and warming.

Net Zero Path = Energy Switch + Urban Transition

- ✓ Shift towards renewable energy
- ✓ In cities the focus on utilities, vehicles, and buildings
- ✓ Behaviour change-based using incentives, nudges, and charges
- ✓ Partnership approach, optimise technology, working with key firms and orgs
- ✓ Radically improved monitoring and accountability
- ✓ City Govt. take the lead, hope to set example
- ✓ Circular Economy as catalyst and accelerator

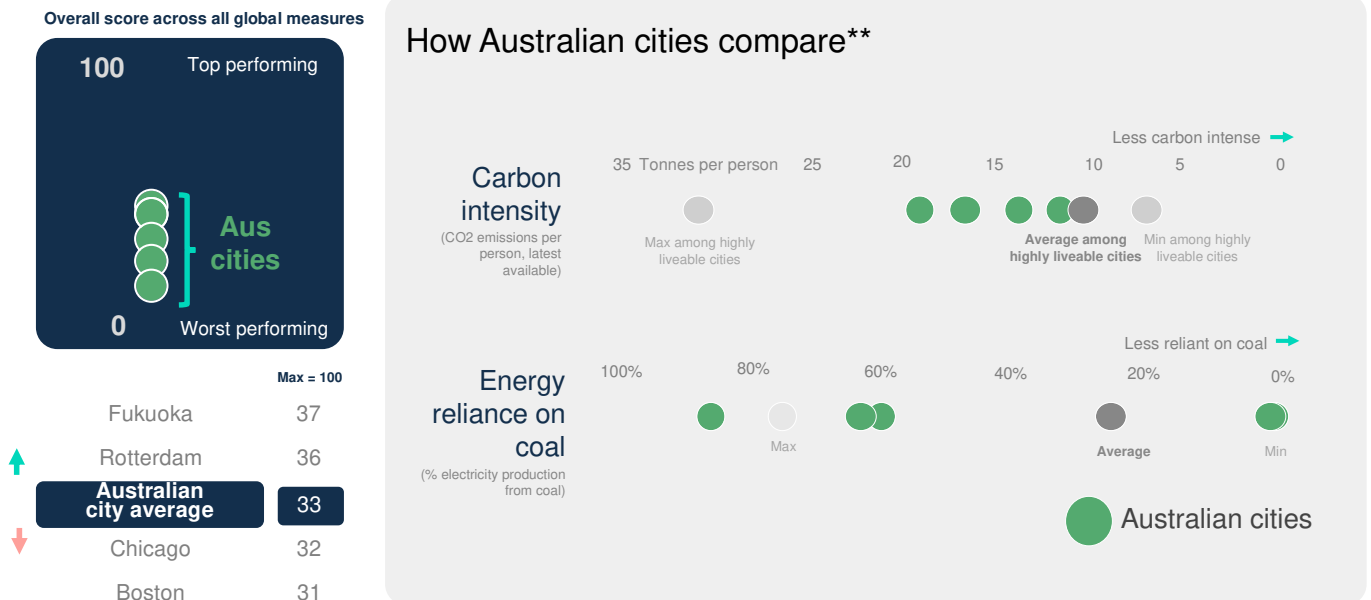


Source: Coalition for Urban Transitions (2019) Climate Emergency, Urban Opportunity

Source: Coalition for Urban Transitions.²¹

This work also recognises that cities are vulnerable to climate change in terms of heat, drought, floods, and insecurity. A third key observation is that cities must lead the process of change at the citizen level with innovative actions and policies to promote an urban transition.

Australian cities' decarbonisation in international measures*



*Calculated using an ELO algorithm that computes aggregate scores across 10+ benchmarks of performance against 330 other highly globalised cities according to GaWC group.
 **Against a basket of relevant highly liveable cities (see Appendix for list). Average refers to the average across these cities and measured Australian cities.
 Sources for individual metrics (from top to bottom): Global Gridded Model of Carbon Footprints; OECD.²²

Australia's central cities are some of the most proactive globally when it comes to decarbonisation progress and forward-thinking climate policy – the City of Adelaide, City of Sydney and City of Melbourne all make CDP's A-List cities.²³ The City of Adelaide's 2025 Net Zero target is one of the most ambitious globally.²⁴

But when looking at the reduction of emissions across whole metropolitan areas, the picture that emerges is quite different. It is only at the whole city scale where the challenge of switching to renewables-based city infrastructure and the shift away from car to public transport become most apparent – the Big 5 Australian cities all perform worse than the average among highly liveable cities in terms of emissions per person across their metropolitan areas. Globally, all of Australia's cities fall in the bottom half of cities on the same measure.²⁵

Sydney and Brisbane in particular are also still heavily reliant on coal for electricity production, at 3 to 4 times the OECD average.²⁶

4.9 Resilience (Climate, Heat, Food, Water, Health, Security)

Our next 50 years will see dramatic rises in droughts, fires, floods, freak weather, noxious air, and cyber and bio warfare. Concern for the security of water, food, energy, land, waste, atmosphere, infrastructure, technology systems, and buildings will rise accordingly.

In this context, Australian cities need retrofit for resilience. The tools and technologies needed across Australian cities to make the adjustment to resilience now are the key quest. The leadership needed is diverse and requires a high level of coordination and collaboration.

For the property sector, there is a key role to help the built environment take a lead to drive innovation for resilience, creating a competitive advantage for Australian Cities and for Real Estate expertise.

Australian cities' resilience in international measures*

Overall score across all global measures (max = 100)

63 ← Aus cities

	Score	Max = 100
Hong Kong	65	
Copenhagen	64	
Australian city average	63	
Berlin	63	
New Orleans	62	

How Australian cities compare**



*Calculated using an ELO algorithm that computes aggregate scores across 10+ benchmarks of performance against 330 other highly globalised cities according to GaWC group.

**Against a basket of relevant highly liveable cities (see Appendix for list). Average refers to the average across these cities and measured Australian cities.

Sources for individual metrics (from top to bottom): fDi Intelligence; OECD; OECD.²⁷

Out of 85 global cities, Perth, Melbourne and Sydney are all forecast to be among the 25 most at risk of increased water shortage stress to 2040.²⁸ Australian cities are in the bottom 25% among OECD cities for access to green areas. Most other liveable cities score above 50%, while the average in Australian cities is 41%.²⁹ And 8% of people living in Australian cities has been exposed to at least one fire over 2017-21, compared to 4% on average among other OECD regions.³⁰

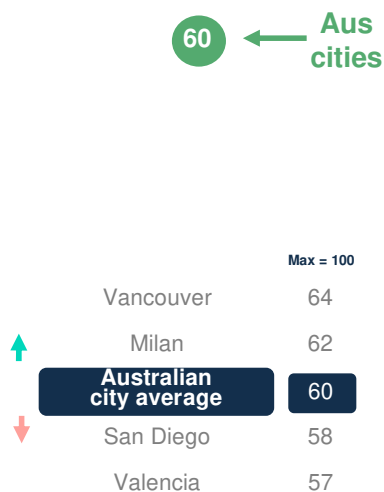
Meanwhile Victoria, New South Wales and Queensland are among the regions with the highest potential damage risk to property from climate change in Oceania, or in the top 100 regions most at risk globally.³¹

4.10 Place Management and Leadership

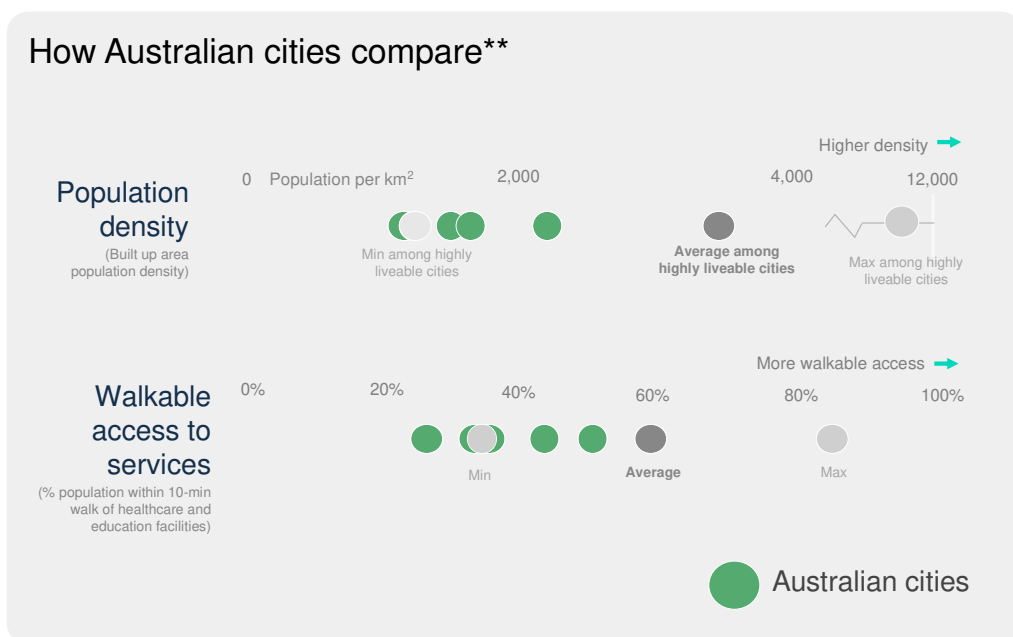
Australia's track record of sprawling growth is evident when looking at the population density of its cities. In contrast, other highly liveable cities have tended to pursue proximity to boost their quality of life advantage. The average density among Australia's Big 5 is far lower than that among a cohort of highly liveable cities.³²

Australian cities' place quality and enjoyment in international measures*

Overall score across all global measures (max = 100)



How Australian cities compare**



*Calculated using an ELO algorithm that computes aggregate scores across 10+ benchmarks of performance against 330 other highly globalised cities according to GaWC group.

**Against a basket of relevant highly liveable cities (see Appendix for list). Average refers to the average across these cities and measured Australian cities.

Sources for individual metrics (from top to bottom): Demographia; ITDP³³

Because of their spatial development patterns, Australian cities are also starting to perform poorly for walkable access to services such as healthcare and education facilities. All are now below the average for highly liveable cities (59%), with the average among the Big 5 over 20% lower, at 37%.³⁴

6. Australia at 40 million.

The Intergenerational Report advised that Australia will have a 40 million population by 2063.³⁵ For any discussion of future cities in Australia this is a critical navigation tool. It throws light on five big questions that the Property Council's Future Cities Summit should debate. The debate about the merits of population growth is not for this essay. Let's just assume, for the purpose of the Summit, that the predictions are roughly right, and, more than likely the 40 million population mark will come sooner than predicted rather than later. If that is the case we need to address 5 connected questions:

- How should Australia use population growth to achieve other ambitions in quality of life, productivity, climate adjustment, and social inclusion.
- Where and how to accommodate the additional population growth. What mix of places are required, and what distribution of growth between established 1st tier cities, 2nd tier cities, adjacent towns and new locations?
- How to accelerate house building and diversify types and tenures so that the housing affordability crisis does not become a permanent blight on Australian cities?

- How to use population growth in combination with new technologies and platforms to create a new, more frugal set of urban locations that present a new form of Australian urbanism.
- How to develop the 'place leadership' platforms that can combine and coordinate all of the ingredients required to deliver this new growth in ways that are acceptable to citizens and sustainable for the planet?

The UN World Urbanisation Prospects Survey attempts to address some of these questions. The hypothetical scenarios to manage Australian population growth, are below - in rank order by survey respondents.

How to accommodate population growth in Australian Cities.

- i. Grow Satellite Cities near larger cities
 - Driven by affordability and liveability issues in state capitals.
 - Results in population growth in satellite cities (e.g. Geelong, Gold Coast, Wollongong)
- ii. Optimise population growth in well connected Rail cities.
 - Largest population growth in rail hubs best connected to state and federal capitals
 - High speed rail connection (not yet built) to state capitals would support this scenario
 - Inland cities would benefit.
 - More distribution to many more inland centres
- iii. Growth of Western Australian cities
 - Focus growth in western cities
 - Currently 1/3 of houses but 1/10 of population
- iv. Northern cities
 - Major population growth in the North potentially catalysed by proximity to Asia and strong economic output.
- v. Sea change cities.
 - Coastal real estate in capitals is skyrocketing
 - Future population growth in alternative coastal cities (eg Newcastle, Gold Coast, Sunshine Coast).
- vi. Secondary capitals
 - Greater growth in 2nd tier cities (Not Sydney and Melbourne)
- vii. Megacities
 - Least popular scenario
 - Melbourne and Sydney continue to be focus of economic output, migrants and population growth

These survey insights should be used to encourage the debate at the Future Cities Summit. What is the best combination of policies and initiatives to encourage sustainable growth and urban quality in Australia?

7. Conclusion: towards the Future Cities Summit.

Australian cities have been highly regarded across the world in the past 30 years. Their famed climate, lifestyle choices, and quality of life, coupled with a long cycle of unbroken prosperity, have marked them out as world beaters. But in the past 5 years the experience of population growth, coupled with newer concerns about climate change, resilience, affordability, and the trends accelerated by the pandemic, have led Australian cities to be less highly regarded for the speed, depth, and effectiveness of their transitions.

The next cycle for Australian cities is about optimising the new tools and approaches that come from the future cities agenda, bringing new opportunities to reshape the cities.

Where and how that is possible in Australian cities should be the quests of the Property Council's Future Cities Summit in March 2024. This essay has traced the issues planned for the agenda and has sought to position them within a global framework. I hope it is a useful companion to the Summit itself and the debates that will unfold.

Appendix

Data notes for charts

Overall score across all global measures calculated using an ELO algorithm that computes aggregate scores across 10+ benchmarks of performance against 330 other highly globalised cities according to GaWC group that appear in at least one benchmark that assesses that theme.

Highly liveable cities = a sample of cities rating among the global top 50 on aggregate for liveability - Amsterdam, Barcelona, Berlin, Frankfurt, Hamburg, London, Madrid, Montreal, Munich, Seattle, Singapore, Stockholm, Vancouver, Vienna, Zurich.

References and endnotes

- ¹ UN World Urbanization Prospects: https://population.un.org/wup/Download/Files/WUP2018-F12-Cities_Over_300K.xls
- ² Australian Government (2023) *Intergenerational Report 2023*: <https://treasury.gov.au/sites/default/files/2023-08/p2023-435150.pdf>
- ³ UN World Urbanization Prospects: https://population.un.org/wup/Download/Files/WUP2018-F12-Cities_Over_300K.xls; World Bank - Urban population (% of total population) <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS>
- ⁴ Based on an ELO algorithm which computes cities' aggregate scores across all publicly available benchmarks and studies of city performance and perception. The ELO approach rates cities by comparing their scores in every possible permutation against a list of other cities. This produces the most accurate comparative assessment of a city's scores, as it accounts for the fact that some cities appear in more rankings than do others, and also that each ranking measures a different number of cities. The ELO rating system originated in chess and is now widely used in competitive and policy contexts.
- ⁵ CBRE (2023) 'CBD occupancy rates spike as more Australians return to the office': <https://www.cbre.com.au/press-releases/cbd-occupancy-rates-spike-as-more-australians-return-to-the-office>
- ⁶ Center City District (2023) *Downtowns Rebound: The Data Driven Path to Recovery*: https://centercityphila.org/uploads/attachments/clnd7ma1s0du8epqd5v98wbq5-2023-downtown-report.pdf?utm_source=ccd&utm_medium=web&utm_campaign=downtowns&utm_id=report&utm_content=oct2023; Savills (2023); 'Office occupancy levels climb across key European cities to 57% - some weekdays almost back to pre-pandemic norm of 70%': <https://www.savills.co.uk/insight-and-opinion/savills-news/353844-0/office-occupancy-levels-climb-across-key-european-cities-to-57---some-weekdays-almost-back-to-pre-pandemic-norm-of-70->
- ⁷ UN World Urbanization Prospects: https://population.un.org/wup/Download/Files/WUP2018-F12-Cities_Over_300K.xls; UN World Population Prospects: <https://population.un.org/wpp2019/>.
- ⁸ Based on local statistical agencies (e.g. Profile ID, StatCan, US census) and KnightFrank European Cities Report 2018: <https://content.knightfrank.com/research/635/documents/en/european-cities-review-2018-5810.pdf>. Data for Australian cities is from Profile ID. Note: homeownership data does not include data for Hamburg, Munich or Stockholm. Data for housing mix does not include data for Frankfurt, Hamburg, Madrid or Munich.
- ⁹ Martin, C. et al. 2023. Towards an Australian Housing and Homelessness Strategy: understanding national approaches in contemporary policy, AHURI, accessed via <https://www.ahuri.edu.au/sites/default/files/documents/2023-06/AHURI-FinalReport-401-Towards-a-Australian-Housing-and-Homelessness-Strategy.pdf>; Pawson, H. et al. 2022. Assisting first homebuyers: an international policy review, AHURI, accessed via <https://www.ahuri.edu.au/sites/default/files/documents/2022-07/AHURIFinalReport-381-Assisting-first-homebuyers-an-international-policy-review.pdf>; Murray, C.K. 2021. Submission to the House of Representatives Standing Committee on Tax and Revenue's inquiry into Housing Affordability and Supply, The University of Sydney, accessed via <https://www.aph.gov.au/DocumentStore.ashx?id=999390fc-3214-4256-9d1fb55d0c741dc3&subId=712931>; Gilbert, C. et al. 2020. Urban regulation and diverse housing supply: An Investigative Panel, AHURI, accessed via <https://www.ahuri.edu.au/sites/default/files/migration/documents/AHURI-FinalReport-349-Urban-regulation-and-diversehousing-supply-An-Investigative-Panel.pdf>; Burke, T., Nygaard, C., and Ralston, L. 2020. Australian home ownership: past reflections, future directions, AHURI, accessed via <https://www.ahuri.edu.au/sites/default/files/migration/documents/AHURI-FinalReport-328-Australian-home-ownership-pastreflections-future-directions.pdf>; Blanchflower, D. and Oswald, A., 2013. Does High Home-Ownership Impair the Labor Market? NBER Working Paper No. 19079. National Bureau of Economic Research, Cambridge, MA; Laamanen, J.P., 2013. Home-ownership and the Labour Market: Evidence from Rental Housing Market Deregulation. Tampere Economic Working Papers, No. 89. Tampere University. OECD, 2015. OECD Urban Policy Reviews, Mexico 2015. Should I stay or should I go? Housing and residential mobility across OECD countries, OECD, accessed via https://www.oecd-ilibrary.org/economics/should-i-stay-or-should-i-go-housing-and-residential-mobility-across-oecd-countries_d91329c2-en; Coffey, C., McQuinn, K., and O'Toole, C. 2021. Rental equivalence, owner-occupied housing, and inflation measurement: Microlevel evidence from Ireland, Real Estate Economics, accessed via <https://onlinelibrary.wiley.com/doi/full/10.1111/15406229.12360>; Clark, G. and Moonen, T. 2015. The Density Dividend: solutions for growing and shrinking cities, Urban Land Institute, accessed via <http://projects.mcrit.com/foresightlibrary/attachments/article/980/ULI-TH-Density-DividendReport.pdf>; Moreno-Monroy, A. et al. 2020. Housing Policies for Sustainable and Inclusive Cities: How national governments can deliver affordable housing and compact urban development, Coalition for Urban Transitions, accessed via https://urbantransitions.global/wp-content/uploads/2020/02/Housing_Policies_for_Sustainable_and_Inclusive_Cities_web_FINAL.pdf
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- ¹² Google Environmental Insights Explorer - % of total trips by mode: <https://insights.sustainability.google/?hl=en-US>; Infrastructure Australia (2015) *Australian Infrastructure Audit*: <https://www.infrastructureaustralia.gov.au/sites/default/files/2019-06/australian-infrastructure-audit-executive-summary.pdf>
- ¹³ Moovit Public Transit Index: https://moovitapp.com/insights/en/Moovit_Insights_Public_Transit_Index-countries
- ¹⁴ ITDP Pedestrians First - Transit: <https://pedestriansfirst.itdp.org/city-tool/step-2> (e.g. Vienna 78%, Stockholm 58%)
- ¹⁵ IMD World Competitiveness Center - Smart Cities Index: <https://imd.cld.bz/IMD-Smart-City-Index-Report-2023>
- ¹⁶ The Business of Cities research based on local transport agency statistics. Includes stations currently under construction to be built before 2027; Google Environmental Insights Explorer - % of total trips by mode: <https://insights.sustainability.google/?hl=en-US>. Note: Sustainable share does not include data for Frankfurt, Hamburg, Montreal, Munich or Zurich. Adelaide data is for South Australia.
- ¹⁷ Ookla Median City Speeds January 2024: www.speedtest.net/global-index
- ¹⁸ Gelmez, E. & Ozceylan, E. (2023) 'Evaluation of the Smart Cities Listed in Smart City Index 2021 by Using Entropy Based Copras and Aras Methodology', Foundations of Computing and Decision Sciences 48(2): 153-180:

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²¹ Coalition for Urban Transitions (2019) Climate Emergency, Urban Opportunity: <https://urbantransitions.global/wp-content/uploads/2019/09/Climate-Emergency-Urban-Opportunity-report.pdf>

²² Miller, M. (2018) 'Here's how much cities contribute to the world's carbon footprint': <https://www.citycarbonfootprints.info/>; OECD Measuring the distance to SDGs in regions and cities - % of total electricity production from coal: <https://www.oecd-local-sdgs.org/>. Note: Carbon intensity does not include data for Zurich. Energy reliance on coal does not include data for Singapore or Zurich.

²³ CDP Cities A List 2023: <https://www.cdp.net/en/cities/cities-scores>

²⁴ Bindman, P. (2022) 'Which cities are in the race to net zero?': <https://capitalmonitor.ai/sdgs/sdg-11-sustainable-cities-and-communities/green-cities-race-net-zero/>

²⁵ Miller, M. (2018) 'Here's how much cities contribute to the world's carbon footprint': <https://www.citycarbonfootprints.info/>

²⁶ OECD Measuring the distance to SDGs in regions and cities - % of total electricity production from coal: <https://www.oecd-local-sdgs.org/>

²⁷ O'Farrell (2021) 'Asian cities most threatened by environmental risk': <https://www.fdiintelligence.com/content/news/asian-cities-most-threatened-by-environmental-risk-79820>; OECD Functional Urban Areas Database: http://www.oecd-ilibrary.org/population-exposure-to-heat-stress_19135ba6-en.xls?itemId=%2Fcontent%2Fcomponent%2F19135ba6-en&imeType=vnd.openxmlformats-officedocument.spreadsheetml.sheet; OECD

Functional Urban Areas Database: https://stats.oecd.org/Index.aspx?DataSetCode=LAND_COVER_FUA. Data for heat stress does not include Barcelona, London, Madrid, Seattle, Singapore, Stockholm, Zurich. Amsterdam, Berlin, Frankfurt, Montreal and Munich all registered 0 days of very strong heat stress. Data for flood risk does not include Singapore

²⁸ Nestpick 2050 Climate Change City Index, based on change in ratio of supply to demand between 2020 and 2040: <https://www.nestpick.com/2050-climate-change-city-index/>. Underlying data from Aqueduct Water Risk Atlas.

²⁹ OECD City Statistics – Green areas – Share of green areas in FUA's urban centres: https://stats.oecd.org/Index.aspx?datasetcode=FUA_CITY

³⁰ OECD City Statistics – Climate hazards – Share of population exposed to at least one forest fire: https://stats.oecd.org/Index.aspx?datasetcode=FUA_CITY

³¹ 2023 XDI Gross Domestic Climate Risk Report: https://assets-global.website-files.com/6470f78e041bb767ea4d900f/6580cec2dab38ec9268531ff_2023%20XDI%20Gross%20Domestic%20Climate%20Risk%20Report%20Web.pdf. Measures risk over next 25 years

³² Demographia World Urban Areas 2023: <http://www.demographia.com/db-worldua.pdf>

³³ Demographia World Urban Areas 2023: <http://www.demographia.com/db-worldua.pdf>; ITDP Pedestrians First – Services: <https://pedestriansfirst.itdp.org/>

³⁴ ITDP Pedestrians First – Services: <https://pedestriansfirst.itdp.org/>

³⁵ Australian Government (2023) *Intergenerational Report 2023*: <https://treasury.gov.au/sites/default/files/2023-08/p2023-435150.pdf>

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