PIA Planning Institute Australia

URBIS

PIA FORESIGHT

ANTICIPATING FUTURE TRENDS SHAPING PLANNING

2024

Urbis and PIA acknowledges the Traditional Custodians of the lands we operate on.

We recognise and respect their continuing connection to these lands, waterways and ecosystems for over 60,000 years and pay our respects to their Elders past and present.

We recognise that First Nations sovereignty was never ceded and that this was and always will be First Nations land.

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FOREWORD

In our ever-evolving world, the pace of change is accelerating faster than ever.

If we want to stay ahead of the curve and not be left behind, we need to anticipate what's ahead and how it might impact our profession. With foresight, planners can help communities navigate change and plan effectively for more sustainable and liveable futures.

With this mind, the Planning Institute of Australia (PIA) in partnership with Urbis have produced this PIA Foresight report to assist planners to better understand the drivers of change and how we might plan for them.

In this report, we aim to illuminate the major trends impacting our profession and the communities we plan for. We focus on trends most relevant to planning, and look across three different timelines that represent the scale of urgency and uncertainty driving how we respond:

The Urgent Trends: *Act Now*

The Preparatory Trends: *Build Resilience*

The Monitoring Trends: *Observe and Learn*

This report has been prepared with inputs from the planning profession, through surveys, workshops and interviews and we extend our thanks to all those who took the time and effort to contribute. Whilst we can never be certain of the exact trajectory of trends, we can make informed assumptions as to their likely impacts. We have aimed to empower the profession with knowledge of future trends and build resilience for our uncertain futures.

Matt Collins MPIA
CEO, PIA

Ashley Lane MPIA
Group Director Planning, Urbis

ABOUT PIA AND URBIS

PIA is the national body representing planning and the planning profession. PIA plays a leading role in effective planning for people and places and supports almost 6,000 planning professionals in Australia and abroad. Through education, communication and professional development, PIA serves and guides thousands of planning professionals in their role of creating great communities.

PIA Planning Institute Australia

Urbis has one simple goal – to shape cities and communities for a better future. It's something that's achieved by drawing together a network of the brightest minds. Think of Urbis as a creative community of practice experts, working collaboratively to deliver fresh thinking and independent advice and guidance – all backed up by real, evidence-based solutions.

URBIS

METHODOLOGY

It's not an easy task to think about planning and how planners might adapt to an unknown future. We already weather challenges that impact our profession and how we go about our day-to-day work, and preparing for a future of unknown challenges can seem, understandably, daunting. But that's where foresight can be a useful tool.

Defined as *'the act of thinking about the future to guide decisions today'*, foresight allows us to explore and understand future trends and help us move beyond predictions.[1] As individuals, we all engage in foresight when we consider what we'll do tomorrow or next year. These decisions become more difficult with increased factors and influences, which in turn create greater uncertainties.

Foresight assumes there is not a single future but that depending on variable factors, only one will come to be. There are several different methods for exploring foresight – many have been developed by leading institutions, including the United Nations and European Commission.

While we cannot access data about what will happen in the future, through the use of strategic foresight we can develop an understanding of plausible scenarios that may lie in the future. These scenarios are often categorised into three future classes: possible, probable and preferable.[2] See the Future Cones Figure 1 below for a visual representation.

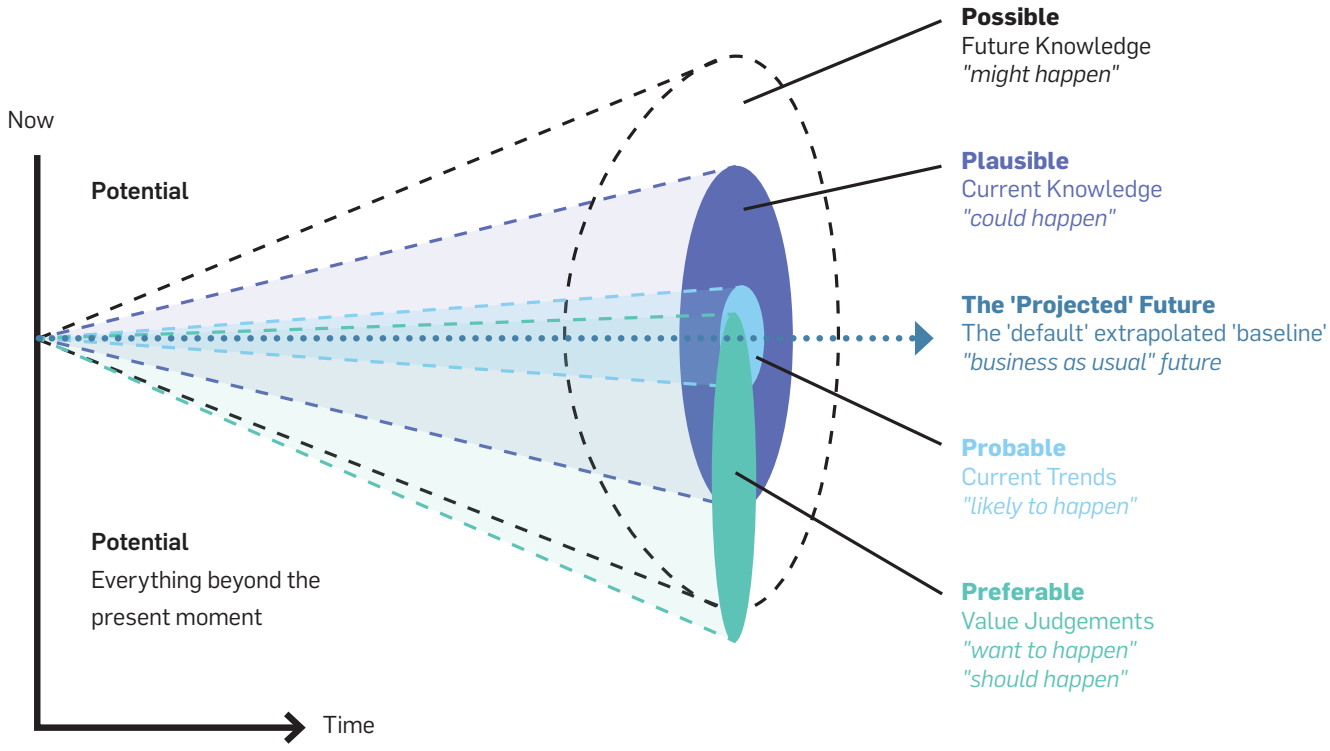


Figure 1 Future Cones: Adapted from Voros and Hancock and Bezold

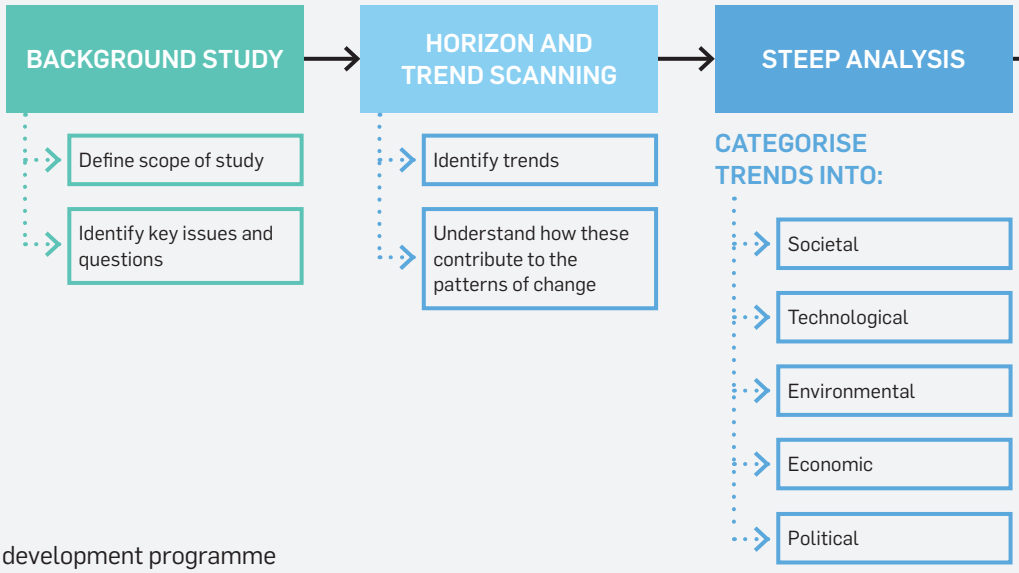


Figure 2 PIA Foresight report development programme

For this report, we undertook extensive background research to define the scope of the study and scan for existing, emerging and future trends that will impact the planning profession. Trend or horizon scanning is the systematic search for signs of change and a foundational practice in strategic foresight.[3]

Through background and horizon scanning alone, we identified more than 200 trends that could impact planning in the future. To help categorise these trends, we employed a STEEP analysis (societal, technological, environmental, economic and political) to investigate the relevant parts of each trend and how this might impact the planning profession.

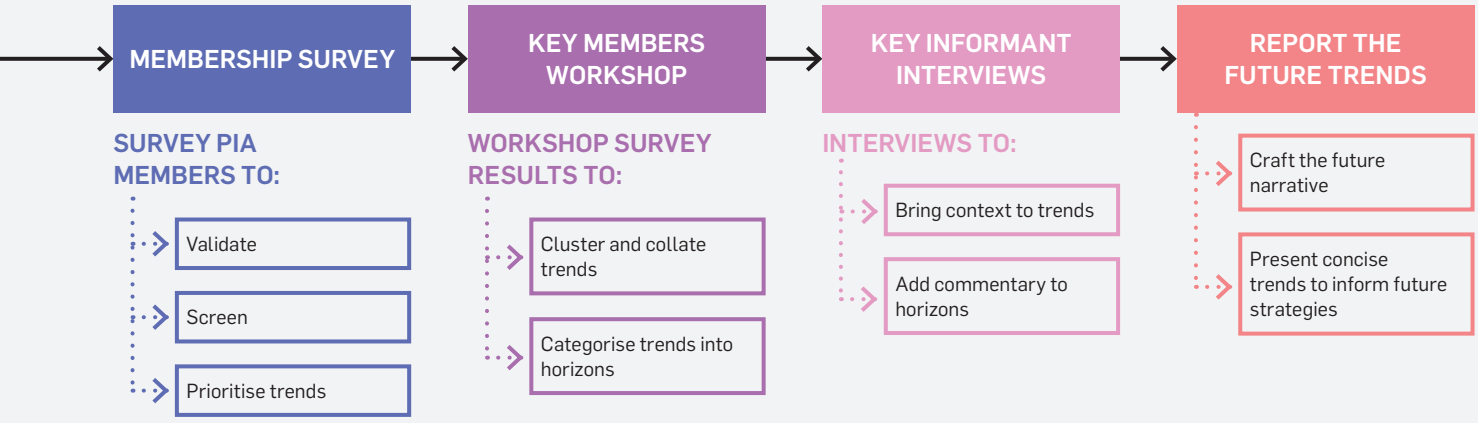
STEEP analysis enables us to: identify a comprehensive view of factors influencing the planning profession and capture a broad suite of trends that represent the multidimensionality of our environment. These trends can then be included or excluded depending on their perceived impact on the profession.

While few trends sit in isolation, STEEP analysis is reliably regarded as the most structured means of assessing the full suite of factors impacting future trends. Trends are naturally impacted by a number of varying factors and intersect with each other.

With the identification of key trends through the STEEP analysis, we the engaged the wider planning profession to understand how the top trends might impact the profession over the next decade. We received 450 responses from PIA members who answered our survey and our request to grade a set of trends across STEEP, from most important to least important. The survey included open form fields for respondents to identify any missing trends or comment on anything else which they thought relevant.

The survey results gave us a hierarchy of trends likely to impact the planning profession and each required further analysis to understand the timeline horizons and severity of the impact. To determine this, we facilitated workshops to provide context around trend prioritisation and examine where in a timeline horizon the impact of these trends will be felt.

Here we gained a deeper understanding of where identified trends sit in a timeline horizon and began to explore with greater detail how and why trends were identified by the workshop participants. We then needed to analyse the data and undertake key informant interviews to provide additional context and cast an expert lens on these anticipated trends.



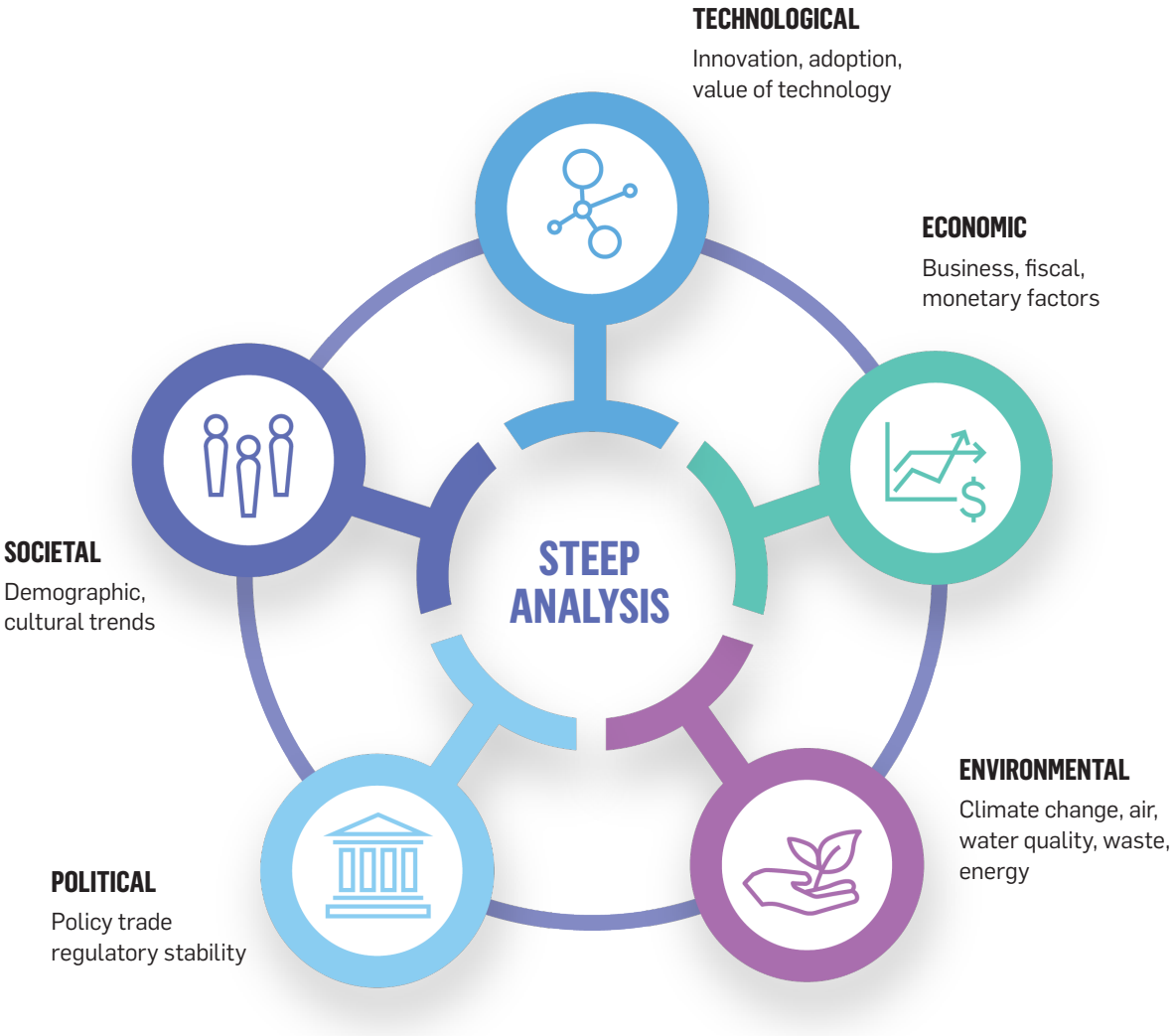


Figure 3 STEEP Analysis

KEY DRIVERS OF CHANGE

The future of planning will be shaped by powerful forces beyond our control. We continually encounter new challenges and opportunities, prompting us to elevate our profession and navigate evolving domestic and global contexts. Here we consider a number of drivers that are accelerating future trends.

Climate Change and Sustainability

Climate change is, and will continue to be, a significant influence on trends affecting planning over the coming decades. We are increasingly incorporating resilience measures to mitigate the impacts of extreme weather events and adapt infrastructure and development to changing climate conditions. We are being forced to rethink traditional approaches and prioritise strategies to ensure we are building resilient and sustainable communities fit for the future.

Population Shifts

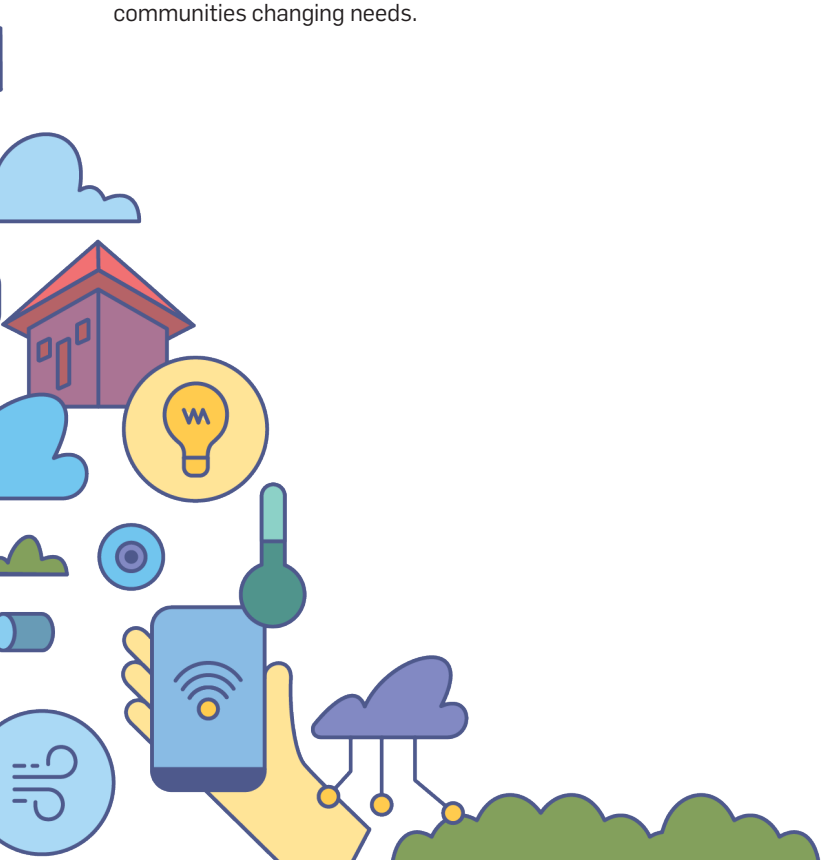
As our population grows and diversifies it is driving changes in planning practices resulting in more flexible, adaptative and inclusive cities. Demographic trends such as an ageing population and migration are requiring changes in housing strategies, land use patterns and infrastructure investments. Population shifts are also increasingly impacting the social and cultural make up of our cities which are going to undergo rapid and consistent change over the coming decades.

Technological Transformations

Technological and digital transformation is reshaping planning. It is allowing us to utilise data-driven insights, integrate smart city technologies, adapt to changing mobility trends and enhance public engagement. Ongoing digital transformation is expected to increase at rapid pace over the coming years, with new technologies emerging which are not understood or utilised today. Technological advancements have the potential to radically alter how we work and be more respondent to communities changing needs.

Political and Social Landscape

Changes in political leadership and direction, changing public opinion and sentiment as well as intergovernmental relations, have a profound impact on future trends. These all have an effect on the dynamic of all levels of government and alter the direction of planning efforts, housing, infrastructure and resource allocation. Planning must align with the values of these diverse stakeholders and confront challenges whilst embracing opportunities.



THE URGENT TRENDS ACT NOW

This section focuses on trends that require pressing action due to their significant impact and urgency. These trends present immediate challenges and opportunities that demand proactive responses from the planning profession. A long list of trends have been identified as urgent with technology, climate change, societal shifts and changes driven by the pandemic all propelling many of these trends to be an immediate priority.

CLIMATE CRUSADES

Building sustainable cities, navigating risks and ensuring resilience

Climate change is a growing concern for urban planners in Australia. With temperatures notably higher in the last century and further increases projected, climate change continues to be a key driver of change and a catalyst for innovation across trends. In roundtable discussions, planners identified extreme weather events, rising sea levels and urban heat islands as urgent challenges.

As urban planners, we play a central role in building sustainable cities and holistic resilience – through structural and community-driven measures that mitigate risk and foster sustainable urban growth. But the trend towards sustainable cities also requires innovative planning, the integration of technology and proactive approaches to climate change adaptation.

These trends emphasise the importance of planning for resilience and sustainability, ensuring cities are equipped to handle ongoing climate-related risks. In turn, planning for resilience and sustainability requires applying a multi-faceted approach, one that incorporates green infrastructure, early-warning systems and nature-based solutions to combat urban heat and promote sustainable development.

Climate change and the natural environment is already making a significant impact on our lives. Australia's 2019–2020 bushfire season led to severe consequences for air quality, increasing respiratory issues and demand for health services.[4] Similarly, heatwaves, which are becoming more frequent across all regions, also contribute to public health risks and impact vulnerable populations, such as older people and those with pre-existing conditions.

Another critical challenge facing Australia is flooding driven by intense rainfall and extreme weather patterns. Climate change is likely to increase the frequency and intensity of floods, leading to further damage to infrastructure, disruptions in essential services and additional public health risks.[5] Urban planners must consider these trends when designing urban environments and focus on integrating flood resilience into city planning with risk-based approaches.

The shift towards high-density, compact housing reflects a response to population growth in urban centres across Australia. This trend aligns with global urbanisation patterns and highlights the need for planning policies that address diverse housing needs while promoting sustainability. Urban planners must balance current challenges with future demands, ensuring our cities can adapt to climate change and continue to thrive in evolving environmental conditions.[6]

The ultimate goal for planners, when it comes to addressing climate change, is to create sustainable cities by being proactive and innovative, integrating climate resilience into urban planning to ensure the safety and well-being of urban populations. This isn't just about the future – it's about addressing immediate threats today while laying the groundwork for a resilient, sustainable and responsive tomorrow.

> **"There is a universal recognition that climate change is one of the biggest trends in planning."**
>
> Samuel Austin PIA (Assoc.)
> Urban Planning and Policy, JOC Consulting

How ongoing climate change threatens urban environments

As urban planners in Australia we face a uniquely complex landscape, where climate change contributes to risks such as urban heat islands, flooding and storm surges across the nation. Since 1910, Australia has warmed by more than 1.4°C and the decade between 2013 and 2022 ranks among the ten warmest years we've had on record.[7] This warming trend contributes to severe weather events, such as droughts, heatwaves and the heavy rainfall that leads to floods.

As outlined earlier, these ongoing climatic changes put additional stress on urban environments, affecting our essential infrastructure, ecosystems and public health services. All of which poses significant challenges for urban planners. Rising temperatures, increasing frequency of extreme weather events and rising sea levels are key factors impacting our cities, necessitating innovative approaches to planning and infrastructure development.

Planning for climate change impacts involves integrating a variety of perspectives – such as energy efficiency, decarbonisation and nature-based solutions – into urban planning strategies. This multi-lens approach addresses not only the structural aspects of mitigating ongoing climate changes but also the social and environmental dimensions, helping to ensure our cities can withstand and recover from ongoing climate-related threats.

The impact of climate change on public health

Climate change will increasingly continue to affect public health in Australia – now and into the future. And this will lead to a range of challenges for urban planners as they prepare to mitigate the impacts and likely increase in the frequency of natural disasters such as bushfires, flooding and heatwaves.

Recent studies have tied the decline of air quality in some areas of Australia to bushfire smoke and pollution. The 2019–2020 bushfire season saw extensive fires across Australia which resulted in compromised air quality and significant public health impacts, including increased emergency department visits, prescription of asthma medications and use of mental health services.[8]

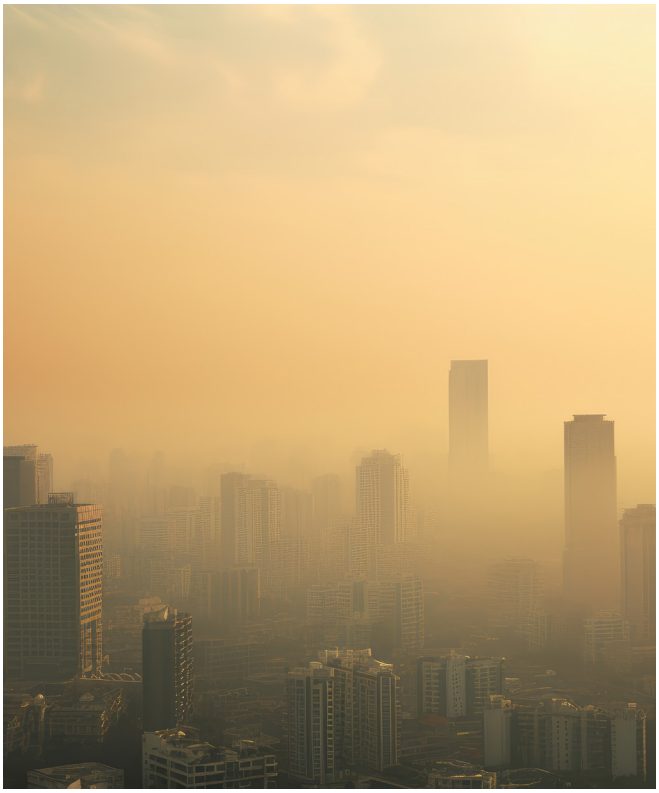
Similarly, flooding is an ongoing public health concern in Australia. Climate change is expected to increase the intensity and frequency of floods, leading to further stress on urban environments, through damage to every-day infrastructure, disruption to essential services and posing direct health risks to nearby residents.[9]

Heatwaves too are becoming more frequent and intense across Australia. They kill more Australians than any other natural hazard and put pressure on our water and energy supplies, leading to restrictions and blackouts.[10] Record-setting temperatures over the past five years underscore the looming public health risks associated with extreme heat across Australia.[11]

Extreme heat events can exacerbate existing health conditions, particularly for older adults and those with pre-existing medical issues. Higher temperatures and increased carbon dioxide levels contribute to longer pollen seasons, with studies suggesting that the length of the ragweed pollen season has increased by up to 27 days in some regions since 1995.[12]

Similarly, elevated CO_2 levels are also linked to increased allergen production and allergenicity in plants like ragweed and timothy grass.[13] A Macquarie University study identified Australia as being unprepared for climate change impact on allergies.[14] Without a national system for monitoring and forecasting environmental allergens, managing this rising risk will remain a challenge for Australia.

The impact of climate change on public health in our nation is undeniable – with far-reaching consequences for the greater population. The urgency is clear. Urban planners must act now to navigate these challenges and create a healthier, more sustainable future for Australian cities.



Building resilience to climate change

As urban planners, building resilience to climate trends requires a multifaceted approach that goes beyond just structural responses. It involves integrating community-based strategies, green infrastructure and adaptive urban planning. Urban planners must consider how these non-structural approaches can support our cities to withstand and recover from climate-related events.

A key aspect of resilience is fostering community engagement and preparedness. Such as educating residents about climate risks, creating emergency response plans and encouraging local initiatives that enhance social cohesion. Building strong community networks can improve our capacity to respond to extreme weather events and reduce the impact of climate-related disruptions.

Green infrastructure also plays a crucial role in building resilience to climate trends. Incorporating parks, green roofs and urban forests can all help to mitigate urban heat, improve air quality and manage stormwater – contributing to a more resilient urban environment overall. [15] Urban planners can leverage green infrastructure and take advantage of government incentives.

Adaptive urban planning involves considering climate change projections, aligning with federal policies and strategic plans, and integrating them into city development. This approach requires urban planners to be flexible, allowing for adjustments as climate trends evolve, to ensure urban environments remain resilient over time.

Building resilience to extreme events goes beyond reinforcing structures and development – it is about preparing communities holistically.[19] This approach emphasises the importance of adaptability, community engagement and proactive planning to safeguard against the broader impacts of extreme events on society.

Building resilience in the Australian urban environments is a dynamic challenge that requires a comprehensive approach. Urban planners must focus on integrating community-based strategies, adaptive urban planning and innovative green infrastructure to ensure our cities can withstand and recover from the anticipated climate-related events.

The Australian Government has introduced several policies and incentives to support sustainability and green infrastructure, including:

- Australian Renewable Energy Agency (ARENA), which funds renewable energy projects contributing to a broader shift towards clean energy and reduced emissions.
- Renewable Energy Target (RET), which aims to boost renewable electricity generation.
- State-based policies to support these initiatives through reverse auctions and other commitments.[16]

Australia's Climate Change Act 2022 outlines ambitious targets for emissions reduction with a goal to achieve net zero by 2050. This reflects a broader commitment to sustainability and the need to focus on clean energy and renewable resources. The National Energy Performance Strategy and Rewiring the Nation Plan are also part of a broader strategy to support energy transition and resilience.[17] PIA have prepared the Achieving net zero emissions report to assist planners in identifying where planning needs to enable early action to reduce carbon.

The Emissions Reduction Fund (ERF) and the National Energy Productivity Plan (NEPP) also play a role in encouraging sustainability. The ERF aims to reduce emissions through projects like native forest regeneration and energy-efficient street lighting, while the NEPP focuses on enhancing energy productivity through technology and energy efficiency measures. [18]

We don't plan for resilient cities and places very well and we need to be better strategically in terms of the land we release and thinking about how the cities can go together and how we masterplan...we do a cookie cutter approach, and we are not creating resilient or environmentally sustainable places."

Clare Brown MPIA
Director, Urbis

SHIFTING DEMOGRAPHICS

Embracing diversity in single-person living, ageing populations and diverse dwellings

Australia's population continues to shift and change. Traditionally, Australia had a young population driven by strong growth through the influx of migrants and baby boom era of the 1950s and 1960s. Yet today, we are living longer, our birth rate is declining and more of us live alone. We're more diverse and require different kinds of homes to cater to our non-traditional living situations.

As planners, data is invaluable when attempting to predict future pressures that may fall on social services, such as the demand for housing. Demographic data, particularly Census data, enables planners to analyse trends and foresee the future demographics of a locality, city, region or country, enabling us to prepare more closely for future eventualities.

A culturally diverse nation

We are a vibrant, culturally diverse nation that is becoming even more diverse. The 2021 census found that 27.6 per cent of people in Australia were born overseas. When the first Census was undertaken in 1911 this demographic accounted for only 17.7 per cent.[20] In addition, First Nations people now represent 3.8 per cent of Australia's population, an increase of 23 per cent from the 2016 Census[21] owing to changes such as methods of data collection and identification.[22]

Over the coming decade, we can expect our nation's diversity to continue to broaden as migration trends continue and our demographic trends evolve. As planners, it's important to ensure that our work reflects this dynamic society and that we cater for all those in the communities we serve. Today, we have an opportunity to be more inclusive and address the needs of those who have been underrepresented in the past.

An ageing population

As a nation we are ageing.[23] The percentage of Australians aged over 65 has increased by six per cent in the three decades to 17 per cent. By 2063 this percentage of the population is projected to increase to 23 per cent, creating the need to act now and plan for a future where one quarter of the nation's population is above 65 and potentially more dependent on services.[24]

As planners, we need to address the increasing demands that come with our ever-growing ageing population, by bolstering health infrastructure and providing more seniors-specific living accommodation options in all regions.

Changes in the home

As our population shifts and evolves so too does our household structure. Census data points to a growing cohort who live alone, with one in four Australians living in a single-person household. Similarly, family household sizes are decreasing to two and a half people.[25] With these changes, coupled with a shift to hybrid work environments, planners can act now to ensure future developments reflect the needs of the people likely to live there.

Multigenerational living

Census data may point to families getting smaller but one demographic shift bucking this trend is the rise in multigenerational households. That is, homes where three generations reside under the same roof. This demographic has been steadily growing for the past few decades. For planners, this is a new cohort with its own distinct needs.

In the short term, traditional housing models and community infrastructure may need to adapt to accommodate the needs and preferences of multigenerational households. From housing design to transportation infrastructure, planners must consider the diverse requirements of multiple generations cohabiting within the same dwelling.

The rise of multigenerational households may impact various aspects of urban development and resource allocation, such as an increased demand for larger housing units or modifications to existing homes to accommodate the needs of ageing parents or adult children living with their families.

Additionally, transport planning may need to account for the mobility needs of multiple generations, including accessibility considerations for older adults or childcare options for younger family members.

In terms of social dynamics, multigenerational living can foster closer familial bonds and provide mutual support networks but it can also present challenges related to privacy, autonomy and intergenerational conflict.[26] Planners must address these complex dynamics through thoughtful community engagement, policy development and the creation of inclusive spaces that cater to these diverse needs.

There's a big concern for a lot of people that if everything is getting more expensive, if migration continues and population growth continues - how do we actually fund infrastructure from a budgetary perspective?"

Dyan Currie AM RPIA (Life Fellow)
Chief Planner, Brisbane City Council

Increasing density

These shifting demographics are having a profound impact on how we plan our cities. Population growth in urban centres across Australia is driving a shift away from the traditional low density neighbourhood sprawl towards a trend for higher-density compact housing model or building up rather than building out.[27]

This is also amplified by some fringe areas becoming less suitable for urban development due to increased environmental risks such as bushfires and flooding. With this trend, we are seeing planning policies emerge which target the provision of more housing diversity through addressing the missing middle and increasing apartment living around high frequency transport nodes.[28]

The global trend of increased urbanisation is reflected in Australia – with the number of Australians living in major cities growing annually – and this trend is expected to continue.[29] With changing demographics and a growing population there needs to be an increased emphasis on developing and implementing planning policies which aim to deliver quality, sustainable homes in the best locations.

This is becoming a national trend with multiple governments proposing and imposing initiatives to deliver higher density developments in response to the national housing crisis. Planners need to be ready to act on these new policies and enable implementation as swiftly as possible, ensuring plans enable the right homes in the right locations, supported by the right infrastructure.

Budget capacity to address demographic change

A growing population and shifting demographics can have a profound impact on both national and state budgets. This coupled with softening global markets and increased geopolitical uncertainty can create challenges for delivering the necessary funding to flow into essential services and infrastructure.

The Federal Government's Intergenerational Report 2023 notes that an ageing population presents ongoing challenges, and continued population growth needs to be well-managed and planned.[30] The effective coordination between budgetary priorities and planning objectives is essential to ensuring the delivery of sustainable communities.

Long-term budgets to address shifts in demographic and population trends need to be carefully considered if we're to adequately allocate future funds to infrastructure, environmental and social services investment and housing affordability initiatives. As planners, our role is to ensure that there is communication of the appropriate transport infrastructure linked to growth of regions.

If governments are serious about climate change and if they're serious about creating sustainable places, then they have to go up and not out. But they must have the political will to do it."

Clare Brown MPIA
Director, Urbis

CRISIS CALLS

Housing affordability, urban exodus and infrastructure challenges

The housing crisis has emerged as one of the most pressing issues facing our cities and regions nationally. While this could be a full paper in its own right and has been the topic of much discussion, here we look at some of the overarching trends and opportunities for planning and planners to address this challenge.

Accelerating rapidly since the relaxation of COVID-19 restrictions, housing affordability has been further exacerbated by ever rising construction costs, inflation, population growth and migration patterns. The housing affordability conundrum is complex with a multitude of factors outside the control or influence of urban planners. Nevertheless, planning can provide an enabling environment for the housing Australia needs, particularly the more diverse mix of housing typologies and tenures necessary to help tackle the housing affordability crisis.

Housing affordability crisis

Australia is experiencing a cost-of-living crisis, accentuated by an expensive housing market with limited affordable housing. The 2021 Census noted a shortfall of 640,000 affordable homes across the country and that the portion of income needed to service the average rent had risen above 30 per cent.[31]

This is particularly pronounced in lower income households, where 30 to 50 per cent of income is spent on housing. It is also important to consider that more than one in three Australian households are renting.[32] It's not surprising that planners identified housing quality and affordability as the most important social trend, second only to management of demographic changes.

Spurred on by the National Housing Accord 2022, state governments are implementing massive housing reform across the country. Victoria aims to build 80,000 new homes in the coming decade and has announced plans for expedited development assessment processes.[33] New South Wales is implementing reforms to make more land available for high density development around transportation and commercial nodes.[34] These reforms aim to facilitate additional development applications and approvals.

Whilst ensuring development assessment systems are operating efficiently and effectively is an important part of the housing supply chain, development approvals are not the main barrier to easing supply pressures – rising cost of materials and labour has slowed the construction of new dwellings. A KPMG study found that construction costs rose by 30 per cent in Australia's biggest cities from 2021 to 2023, and that almost 16,400 dwellings in NSW alone had been approved but were yet to start construction.[35]

The implications for planning are immense, with pressure from the media and public to deliver solutions to the housing crisis. Expensive housing disproportionally impacts low-income households the most, and contributes to rising homelessness, pressure on regions and infrastructure delivery across Australia.

Cost of living crisis and growing wealth inequality

Wealth inequality is rising alongside housing prices. The wealthiest 10 per cent of Australians own over half of the wealth in Australia, with the top one per cent owning close to a quarter of our country's overall wealth.[36] This is more than the bottom 70 per cent of the population.

This stark wealth inequality can lead to negative outcomes that persist through to retirement.Generations who rent and have no other assets or investments, are likely to experience poverty later in life, especially during retirement.[37] With the median level of rent higher than the maximum age pension in Australia, generations who retire without owning property will experience serious disadvantage.

We're seeing an ever-growing gulf between those who have and those who have not. Rising inflation has led to a substantial cost of living crisis, with more and more households seeking support, and those on lower incomes the worst affected. Housing and housing supply are often at the centre of this discussion with pressure on governments to relax land-use planning policies and foster more community led solutions.[38]

More government investment in social and public housing is needed with additional funding likely to be allocated in forthcoming budgets. This will help counteract the rise in Australians facing housing insecurity, with increased options for tenure including rent-to-own housing developments.

We need to make sure we're approaching regional growth correctly. If there's going to be growth, how do we make it work for the people who are already there?"

Dr Laura Crommelin MPIA
Senior Lecturer, UNSW Sydney

Rising homelessness

Homelessness in Australia increasing year on year. And the risk of becoming homeless is growing as housing costs in our cities and regions outpace wage growth. Homelessness in Australia increased from around 90,000 Australians in 2006 to 122,000 in 2021.[39] Homelessness tends to have a more significant impact on males and rates are highest among 18 to 30-year-olds – young Australians who are reaching adulthood in an era of expensive housing.

There is a link between an increase in median rent and "severely overcrowded dwellings," which are defined as dwellings that would require four or more extra bedrooms to accommodate the usual occupants. Growth in severely overcrowded dwellings is the fastest growing typology of homelessness in Australia.[40]

More than half of Australians seeking homelessness services report issues with finance or housing, including rent or rising housing costs.[41] Finance and housing concerns ranked higher than any other reason Australians might seek housing assistance. Today, over 640,000 Australian households experience housing stress or homelessness. By 2041, this could impact one million households.[42]

Gen-R (Generation rent)

An ever-increasing cohort of young Australians are waiting longer to purchase their own home or are shut out of homeownership altogether. As the cost-of-living crisis continues, many households are struggling to access housing with Australia's housing crisis amplified by a corresponding rental crisis. Australia-wide, we're experiencing a period of extremely low rental vacancy rates and rising rent.[43]

This trend is the result of a number of complex issues and it disproportionately impacts younger generations more than any other generation before them. This shift has also been underpinned by narratives around intergenerational injustice and the belief that housing is largely controlled by older generations.[44]

With a growing cohort of renters now experiencing rental stress, there is increasing pressure on governments for legislation that protects renters in the short-term and planners to provide long-term solutions. Specifically, renters need governments to introduce policies that increase housing affordability and provide access to more stable long-term rental accommodation such as build-to-rent housing developments.

Escalating housing and rental prices are also forcing younger households out of the city core and into suburban, exurban and regional areas of Australia.[45] Without housing security, younger generations are becoming locked out of our cities, more likely to rent and, as a result, will contribute to the pressures facing regional and suburban Australia.

It's about security for future generations, whether that be security of power or security of water supply. Part of the problem now is, in some areas, we are already behind and so we're essentially trying to catch up and plan. Its going to hit some of the most essential services and that's a big problem that there is not enough awareness of – how dire the situation is."

Bunfu Yu MPIA
Senior Environmental Planner, Entura

Pressure on regions to accommodate new residents

Accelerated by the COVID-19 pandemic, the urban exodus of Australians to semi-regional and regional towns is a trend that planners must keep front of mind. Sydney and Melbourne both experienced a net internal migration loss during 2022 and 2023, with Sydney experiencing the greater loss when almost 40,000 people chose to leave and settle elsewhere in Australia.[46]

This has extended the cost of housing beyond Australian major cities into our regional cities and towns. Residents of these smaller communities now identify housing affordability as a key concern.[47] While annual rent inflation was eight per cent nationally in 2021, the regions suffered a 12.4 per cent rent inflation rate in the same period.[48]

Part of the attraction of regional towns close enough to cities is that it's still possible to commute to work once or twice a week. This creates a perception of diminishing lifestyle appeal for existing residents of the regional cities and towns as their towns scale up and competition of resources increase.[49] Unlike larger capital cities, regions are impacted by even slight increases in population. This is largely due to regions having less capacity for unplanned growth, with their existing infrastructure and services already at capacity.

Opportunities exist for increased funding in regional areas projected to grow due to urban exodus. Governments can investigate rezoning of existing areas for residential and ancillary development, invest in upgrades to existing infrastructure and plan for increasing overall capacity.

Need for better planned infrastructure

Infrastructure is not always aligned with growth in Australia. As noted by Infrastructure Australia, our biggest cities are "playing catch up" with infrastructure to support growth.[50] This has several negative ramifications.

Residents in new growth areas, often greenfield areas, experience limited to no public transport or pre-built infrastructure. This has resulted in suburbs with one access road and limited public transport experiencing ghoulish congestion simply to leave the suburb.[51] Growth in both greenfield and brownfield areas often leaves community infrastructure chronically short – with many schools around Australia increasingly turning to demountable classrooms as a short-term solution.[52]

Interestingly, infrastructure can also precede growth in an area, an inefficiency that can lead to massive waste in funding and resources. A lack of appropriate land use around Leppington train station in Sydney is an excellent example of this problem – a station primarily surrounded by carparks and limited development.

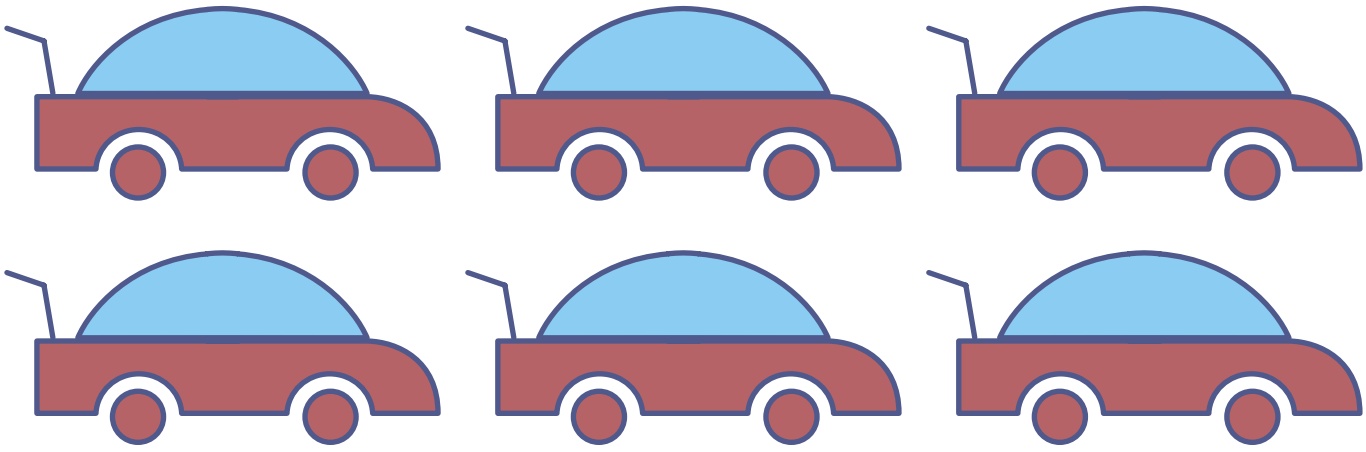
This trend of misalignment of infrastructure and growth has contributed to anti-development sentiment among suburbs identified for density uplift.[53] Often arising out of a distrust of the government's ability to deliver appropriate infrastructure, communities feel left out of the conversation when it comes to the infrastructure they desire.

There are opportunities to deliver better staged infrastructure that aligns with growth and includes community engagement. But this requires strong cooperation between different levels of government, as well as proper consideration of what communities need. Integrating growth and infrastructure will reduce delays in delivery, lower costs of retrofitting infrastructure into built-up areas and mitigate the risk of entrenching car-centric behaviour and wasteful short-term solutions.

ELECTRIFYING EFFICIENCY

Electric vehicles, sustainable transport and infrastructure innovations

Against the backdrop of new tech innovation, electrification of transportation and infrastructure is a prevalent trend in planning. This trend encompasses renewable energy advancements, electric vehicles (EVs), sustainable transport, driverless vehicles and micromobility.



Renewable energy advancements

Despite a dip in energy generation during the pandemic shut-downs, it's predicted there will be another surge in energy demand with renewable energy surpassing coal and accounting for 80 per cent of growth in electricity demand by 2030. In the years leading to 2040, global electricity demand is expected to grow at twice the rate of primary energy demand, with the main demand in Asia.[54]

Back home, roof-top solar was the largest portion of new renewable energy in 2022; and in 2023, it produced more than ten per cent of Australia's electricity.[55] [56] A small proportion of these households are installing batteries along with their photovoltaic (PV) systems, but the cost of batteries is falling which is already encouraging a greater uptake.[57] [58]

For large-scale renewables, Australia has a mixed outlook. Battery energy storage systems are a growth area.[59] [60] And new technologies in this space may see the roll out of more sustainable, higher capacity and longer lasting battery systems for large-scale solar.[61] [62] Key growth opportunities for Australia exist not only in existing traditional renewables but also in emerging technologies.

There's growing interest in hydrogen energy with some of our established trade partners in Asia.[63] A recent $2 billion commitment in production incentives by the Australian Government for renewable hydrogen projects may boost this technology.[64] Yet green hydrogen is three times as expensive as less sustainable kinds.[65] Australia will need significant infrastructure changes to realise this potential.

Biofuels are a lesser known emerging energy generation method, with several policy and funding developments aimed at supporting biogas, biomethane and other fuels.[66]

That said, there is concern as to whether Australia can scale this technology up to the level required for cost-competitiveness with the EU and other international markets.

Australia's increased investment in renewable energy has led to discussions about the associated waste, mining and land use.[67] Steel is a large part of constructing renewables and steel makers globally now recognise the need to keep up with sustainability demands and eliminate carbon from their supply chain, with suppliers in Sweden and China having some success.[68] [69] [70]

Recent environmental shocks have raised concerns about the resilience of renewables around climate change events and grid reliability. New ideas surrounding the decentralisation of energy systems such as micro and smart grids bring energy generation closer to where people live and allow for better monitoring and distribution.[71] [72] [73]

These technologies are still in the early stages. All levels of governments – as well as planners – need to address issues around community consultation, equity, zoning, grid connection and impact on the local environment. While Australia's landform and economic character may place us in a position to be a powerhouse in clean energy and low-emissions technologies, we need our governments to have the strategy, legislation and action in place to get us there.

The biggest issue for renewables is around retrofitting. I think we're going to be seeing that more and more as some of the ageing assets need to either refurbish or redevelop. For new infrastructure, its about how do you future proof new infrastructure for the communities that may be built around them down the track"

Bunfu Yu MPIA
Senior Environmental Planner, Entura

Electric vehicles and sustainable transport

The transportation sector accounts for 20 per cent of Australia's national greenhouse gas (GHG) emissions.[74] Lowering these emissions is critical if we're to meet Australia's net-zero by 2050 targets. Whilst more traditional forms of sustainable transport are well documented and on the rise, Australians are now driving over 180,000 EVs with more arriving on our roads each day.[75] So what does this mean for planners and our industry?

16 per cent of survey respondents identified EVs as the main technological trend the planning profession will need to contend with over the coming decade.[76] This is consistent with The PIA Foresight Survey 2023, where the primary technology trend identified by respondents was EVs. Governments have identified three main concerns around uptake of EVs: upfront costs, model availability and range anxiety.

The planning profession has the ability to mitigate concerns over range anxiety through planning for an increase in the quantity and quality of EV charging stations.

In NSW, the state government has invested $149 million into 250 fast and ultra-fast charging stations to combat range anxiety.[77] These stations will be located along major NSW highways at five-kilometre intervals in metropolitan areas and 100-kilometre intervals elsewhere.

At a national level, Australia's National Construction Code now requires that new apartment buildings provide EV charging capabilities in an owner's car spot.[78] This will ensures owners of future apartment buildings can confidently purchase and drive an EV without relying on external chargers.

New EV charging facilities alone are not enough to support a transition to EVs. From a planning standpoint, incorporating measures such as free parking and dedicated rights of way for EVs will also contribute to increasing consumer uptake.[79]

State governments are also integrating electric public buses as a means of decarbonising the transport sector. In NSW, the state government has committed to transitioning the state's 8,000 buses to zero emissions technology.[80] In Victoria, all new public transport buses purchased from 1 July 2025 will be zero emission buses (ZEBs).[81] In addition to contributing to cleaner air, electric buses also help to quieten our streets.

Source: Unsplash

Source: Unsplash

Intelligent transport systems

Autonomous driving assistance is increasingly becoming part of the way we drive – think reverse cameras, lane assist, etc. Yet fully driverless cars are not yet commercially available in Australia. This means that drivers must be able to rely on human intervention, their own or a passenger, if an emergency was to occur on the road.[82]

The difficulty arises when the 'driver' or occupants of the vehicle are distracted by another task (i.e. work) and must somehow respond to an emergency in the vehicle. Studies show that the longer a driver engages in a distracting behaviour resulting from the lack of their need to drive, the worse their response in an emergency.[83]

Intelligent Transport Systems (ITS) increasingly assist with making driverless (and all) vehicles operate more safely and efficiently on the road. ITS have been in Australia for decades, such as lane management, traffic monitoring and dynamic speed zones.[84] Australian companies are pioneers in this space. The Sydney Cooperative Adaptive Traffic System (SCATS), a NSW government initiative, manages traffic in 30 countries worldwide.[85]

Increased digitisation of our roads will result in the capacity for autonomous vehicles to communicate with each other, decreasing our reliance on human intervention. In Victoria, the state government has tested a digital safety warning system over a 4G network that allows connection between vehicles and can warn about a potential red-light violation early enough to prevent crashes at intersections.[86]

As planners, re-thinking our intersections to accommodate ITS will create safer and more viable infrastructure for autonomous vehicles use.

Active transport and micromobility

Electric bikes are increasingly forming part of the make-up of active transport and urban mobility. Ride sharing services where users can hire a bike – usually through an app or subscription plan – are growing in popularity and usage too. These services are increasing innovation across the active transport and micromobility space.

Some companies are rolling out innovating technologies such as 'sidewalk riding detection'.[87] This technology can help distinguish where it is unsafe or unlawful to ride the bike. It uses growth AI-enabled technology to make the identification, and can even be tailored for specific cities. This is especially relevant in Australia, with laws around who can and can't ride on a footpath.

When it comes to e-scooters, there's currently a mismatch between different states and different levels of government. Some states, namely Queensland, Western Australia, Tasmania and the ACT, have legalised e-scooters, albeit with significant regulations. While other states have noted that privately owned e-scooters are not legal in the public domain.

Even within a state that has banned e-scooters , such as NSW, local councils often differ on their perspective. This has implications for planning infrastructure and expected uptake of e-scooters when working in different parts of a city, let alone a different state.

DIGITAL FRONTIER

Digital twins, data integration and AI ascendancy

For close to a decade, we've been discussing the Fourth Industrial Revolution, 4IR or Industry 4.0. Introduced in 2016 by Klaus Schwab, the founder of the World Economic Forum, the term is used to encompass the impact of rapid technological innovation.[101]

The cornerstones of which include the move towards automation, increased connectivity between machines and the seemingly unstoppable growth of artificial intelligence (AI).

In this era of rapid change there is growing concern, not only about what this technological growth means for the future of how we plan and the industry as a whole, but around the security of information, misinformation and how to ensure those without technological know-how aren't left behind.

"Maybe the stars are aligning in some ways with the use of AI in that if this is a tool that we can use in a very strategic way, we can take some of the more mundane tasks out of the planning process."

Dr Laura Crommelin MPIA
Senior Lecturer, UNSW Sydney

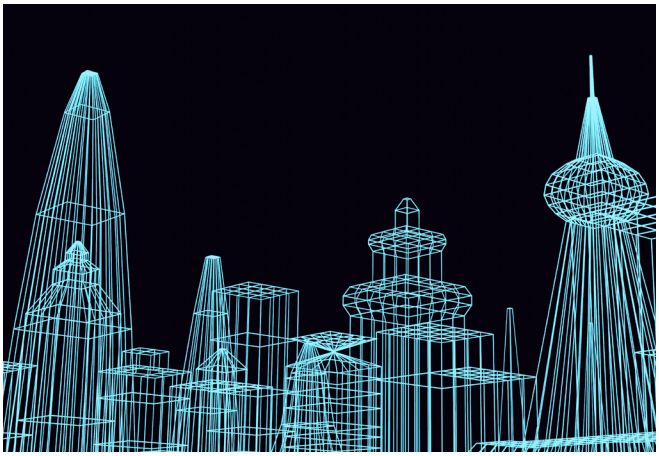
The rise in digital twins

A digital twin is a virtual model of an intended or actual physical object. Specifically, *a digital twin is a virtual mirror image of a physical process that is articulated alongside the process in question, usually matching exactly the operation of the physical process which takes place in real time.*[88] Digital twins can be used to analyse, understand and improve a product or service.[89]

In Australia, digital twins are forming part of the planning landscape. In 2020, the NSW Government and CSIRO launched the NSW Digital Twin – the first of its scale in Australia.[90] This digital model includes 3D and 4D models of Western Sydney and Bathurst. It combines transport, utility, infrastructure, building materials, boundaries and valuations, strata and environmental data into one digital space that represents the areas.[91]

This dataset is secure and only those with permission for certain datasets can access them. As planners, being able to layer and display these combined datasets will increase efficiency and accessibility of the planning profession. Digital twins can also assist planners in demonstrating potential changes to communities and can be used to understand and model physical changes themselves ahead of construction or an intervention.

Overseas, the value of using digital twins on an urban scale was trialled in the small town of Herrenberg, Germany. Located 30km from Stuttgart, Herrenberg underwent a digital duplication using open-source data and software, to study the effectiveness of digital twins. The use of open-source software enables planners and researchers to use and improve this digital model now and into the future.[92]



Source: Unsplash

Increasing use of AI

AI is a fast-evolving technology, increasingly present in our personal and professional lives. Respondents to our survey identified trust in AI and its growing prevalence as one of the most important trends in planning, with AI being rated the third most important issue facing the profession. The field is expected to grow 20 per cent annually and be a major 21st century disruptor.[93]

Professionally, planners increasingly encounter AI in our work. The NSW Government is investing $5.6 million dollars into AI and digital solutions for the purpose of expediting local development applications with a program due to launch mid-2024 and pilots already underway.[94]

AI is increasingly influencing traffic patterns across many of our cities through the use of Intelligence Transport Systems (ITS) that increase the efficiency of transport networks, with timed traffic lights, dynamic lane allocation and real-time monitoring.[95] Decision-making processes of AI are far more efficient than the traditional ITS models, and creates a more effective and solution. While AI may be more efficient, questions are raised about its capacity to make logical judgement.[96]

That said, AI's ability to produce output is based on the data given as its input. As AI grows in both prevalence and ability, concern is emerging around whether we can trust AI's storage of data and privacy. In 2018, more than 43 per cent of respondents in a global survey already felt they lacked control over their personal data. Today, AI is becoming an additional frontier to be navigated.[97]

Continued adoption and usage of AI is understandably linked to this trust.[98] For the planning profession to effectively adopt the use of AI, the systems we use need to be trustworthy. As an example, the integration of ITS certainly improves our transport networks but enormous banks of data are required to make this happen and effectively utilise the power of AI.

Concern is rising not only around our data protection but technology dependence and how that might impact our lives. When AI takes over the decision-making and analysis of our transport related systems, a potential risk of technology dependence is an increasing vulnerability in the case of a system failure.[99]

Two thirds of consumers at the large IT company Accenture, stated they are already concerned about commercial use of their private data.[100] As we learn more about how best to integrate AI and the benefits and pitfalls it brings, the planning profession must be careful to avoid the erosion of public trust. PIA has already begun drafting guidance on this emerging trend and have provided a guidance note on AI in Development Assessment. More is to come in this rapidly evolving area.

Open-data service platforms for transport (Tripview) or live tracking (Uber, etc)

Further contributing to the decline in private vehicle transport is the rise of on-demand services and real-time journey planners.[102] Real-time journey planners are growing in usage and serviceability, with transport bodies such as Translink (QLD) and TfNSW (NSW) integrating their own journey planners into their platforms.

Third-party developers are also integrating open-data-based journey planners into their existing software, such as Google and Apple Maps. New software applications such as TripView, services NSW and Victoria and is used to provide real-time transport information.

These platforms reduce the barrier to access by providing real-time information to users of public transport. However, their usage extends beyond public transport users to the city planning profession who can use the data to make more informed decisions about the future of our cities. Planners will be able to use this data to understand transport demand and how people move through and use space.

EMPOWERED DIGITAL CITIZENS

Navigating misinformation, promoting transparency and fostering digital engagement

For decades, the planning profession has explored how technology might improve the way we work to deliver better outcomes. From incorporating Geographic Information Systems (GIS) into our daily operations to using open-source mapping such as Google Street View to undertake context analysis, we live in an age where technology can be leveraged more than ever before.

This has been accelerated by the COVID-19 pandemic and we have now seen an almost instantaneous transition to digital. Society itself has embraced the digital age with digital technology sweeping the globe and impacting every aspect of our lives – presenting ever-evolving opportunities and challenges.

Navigating misinformation

With increased access to information at our fingertips come more opportunities for misinformation to permeate our profession, leading to altered public perception of outcomes. Trends can often have unforeseen consequences, even for us as planners. This has never been truer with the rise of extremism and conspiracy theories circulating around our profession.

As planners we know how to shape communities and enhance land use to enrich the lives of those who live, work and interact with it. A primary concern of planners is the opportunity for widescale misinformation to disrupt otherwise fruitful engagement sessions, by creating doubt in communities around planned policies and developments.

Misinformation can create harmful narratives about what we do and how we plan for the future. It has led to a wave of protests worldwide challenging the concept of the 15-minute city, an innocuous planning theory promoting sustainable living.[103] One of several examples, including 5G, to infiltrate the community and create scepticism around the true nature and intended outcome of our work.[104]

This scenario would have been unprecedented several years ago but this rising trend of misinformation only continues to gain momentum. We as planners should act now to quell the growing uncertainty around what we do – building clarity through the channels available to us.

“Planners need to be actively out there sharing the correct message to counteract misinformation. If you package the truth in an approachable way that’s engaging, you can quickly get that information to a bigger audience.”

Samuel Austin PIA (Assoc.)
Manager, Urban Planning and Policy
JOC Consulting

Digital equity and inclusion

As technologies such as AI develop at pace, a generations-wide gap in knowledge around how to use certain technology continues to grow. 'Digital nomads', the generations who have largely grown up online are perceived to have higher digital literacy than 'digital immigrants', older generations who have adopted and learned new technology later in their lives or careers.

Being adept in technology is important to success in the workplace, especially in a post-COVID-19 world with increased work-from-home opportunities and virtual meetings. The 'digital nomad' concept can be seen through millennials and Gen Zs who are more confident using technology to create solutions in the workplace at higher rates than older generations.[105]

Research indicates that all generations, including 'digital immigrants,' have a strong desire for technological solutions at work and value the productivity that these create.[106] But this desire is impeded by the confidence of older generations to learn and use the technology effectively –marking the digital divide.

This trend is more pronounced in the wider community where not everyone has access to current technology or know-how to engage with and feel part of the planning process.

This has led to an exploration of digital inclusion among Australians with the Australian Digital Inclusion Index 2023 finding that while we see increased digital inclusion nationally, this is not balanced outside major cities.[107] In addition, First Nations people rank lower in terms of access, while older generations score lower in digital ability.

These are important measures when considering planning outcomes and participation. We need to plan solutions for all levels of digital literacy, regardless of generations or access to digital resources. Planning for all levels of digital literacy will assist in better community outreach and more informed outcomes now and into the future.

"Social media has a powerful way to distil really complex information into really digestible posts and it's a way to really spread information and I think from that...the risk is that you do get unvalidated information or false information which spreads really quickly because someone put it into a believable video."

Bunfu Yu MPIA
Senior Environmental Planner, Entura

POLARISED POLICIES

Balancing divides, trust trials and bold leadership

In many ways, planning sits at the intersection of social and political landscapes. This presents a complexity that is unique to a profession that strives to deliver optimal outcomes for both communities and its citizens. In the post-COVID world, Australia has experienced increase pressures from political division and polarisation, leading to the erosion of trust between governments and the general public. How can planners best navigate this?

The complexity of federal, state and local governments

Australia currently faces a multitude of challenges: a cost-of-living crisis, rising homelessness and a housing crisis, requiring intervention at all levels of government. We now see expanding levels of Federal Government influence in planning and housing supply, which then impacts state and territory government influence over local government activities, including the Housing Accord and the National Planning Reform Blueprint.[108]

These pressures are leading to increased state intervention into local planning, leading to conflict between state and local governments as well as their communities. While not a new trend, the frequency and scale of influence to combat and address such issues is escalating.

This tension is often driven by divergent views about the appropriate balance between two competing interests: the expectation that planning should reflect local community aspirations, and the necessity for planning to meet the needs of future generations and respond to important policy issues.

“I honestly feel that state governments can't look after our metropolitan areas because they're not there for that purpose. Metropolitan governments are much more nimble, more able to experiment.”

Marcus Spiller MPIA (Life Fellow)
Principal & Partner
SGS Economics & Planning

Source: Unsplash

Eroded trust between communities and government

Public trust in all levels of government is essential for our society for function – with the general population trusting their government to make decisions that will lead to positive outcomes. A growing lack of trust in government and various institutions has been the subject of much commentary of late. Planning is no exception.

Recent studies have found that Australia is experiencing increasing polarisation with declining trust in leaders, governments and journalists. The Edelman Trust Barometer report found that Australia is between 'moderately polarised' and 'in danger of severe polarisation'.[109] This comes after a time of relative high trust in governments and institutions during the COVID-19 pandemic as governments made bold and decisive decisions to protect our collective welfare.

Exacerbating this trend is the rise in extremism nationally, which presents an ongoing challenge when it comes to the government's ability to build trust and social cohesion. Divisive narratives around certain topics, including matters relating to planning and urban development, can further hinder our efforts to engage effectively with communities.

Planning is inherently about working for the public interest and ensuring balanced outcomes. As Australia continues to move towards a more polarised society, we as planners must work to maintain the public trust, which is essential for ensuring confidence in the work we do. That said, planning can also be politically driven with many outcomes disputed.[110]

In the public's mind, extremism coupled with questions around whether we can trust our governments all contribute to increased polarisation, and can erode the ability of various levels of government to deliver on planning visions and outcomes. As planners we must balance how we prioritise public interest over conflicting interests.

Political divides shaping policy outcomes

Planning and related policies including those related to housing are often regarded as some of the most divisive. They impact the majority of the population and often lead to policies acting as political footballs, with the most beneficial policy out of reach due to political pressure. These political divides have played out time and again when it comes to housing and planning policies.

As an example, successive NSW Governments have not comprehensively reformed planning legislation for more than 40 years, and the recent Housing Accord and HAFF funding was widely contested in Federal Parliament.

Our political cycles are short, considering how long it takes for implemented policies to take effect. Planning, climate and housing policies have an even longer lag time for implementation with their impact often not felt for many years. As politics shift and change, so too do policies and these often move in the opposite direction, in line with the priorities of the party in power.

This creates considerable risks for us as planners working towards long-term plans to implement major policies. It also creates a sense of urgency in how we work to implement policies developed by higher tiers of government and take advantage of support and incentives to deliver on policies where available.

FUTURE LEADERS

Youth movements, empowering younger planners and strengthening the profession

Planning impacts everyone. Yet key stakeholders are often those with more time on their hands, and for the most part, dominated by those who object to development or change in their local area. Traditionally, we have excluded youth participation in planning.[111] But with information now at our fingertips and digital engagement platforms more accessible, we can begin to bridge this gap.

I think that it is really important in advocating for the planning profession that we try to make clear the value a planning degree has over environmental or geography degrees which people might think are the same thing."

Laura Crommelin MPIA
UNSW Sydney

In some ways the planning profession is facing a bit of a crisis of confidence."

Marcus Spiller MPIA (Life Fellow)
Principal & Partner, SGS Economics & Planning

Empowering younger planners

The youth of today are more engaged and informed than ever before. They have a sense of social responsibility and are readily mobilised through social media. Social media platforms are shedding light on planning in engaging and informative ways, enlivening a cohort who have not yet engaged en masse.

The rising popularity of Yes in My Backyard (YIMBY) and high-level profiling of champions of green movement change, such as Greta Thunberg, are encouraging young people to be more vocal about changes likely to impact their futures.[112] Planners have an opportunity to ride this wave of increased engagement and ensure the voices of the next generation are heard and considered.

Youth engagement in planning can bring fresh perspectives and innovative ideas to planning outcomes. This young cohort should be leveraged wherever possible to create more equitable outcomes, ones that speak to the needs of all stakeholders not just the loudest.

Through our surveys and workshops, we heard that young planners aspire for planning to become a more respected profession. While there is little research as to the public perception of planners, there is a sense that often our important work is valued less than our counterparts in the built environment.[113]

PIA has been strong in its approach to growing the value of planning and planners; but collectively, we can do more.[114] We need to act on this trend to ensure aspiring planners enter the profession with the knowledge that they will be respected and valued for their skills and contribution to future communities.

Strengthening the profession

Outside of strengthening the public perception of planners and the profession, there is also a growing trend among planners themselves who are becoming disillusioned with their work. PIA's State of the Profession 2023 report found that 20 per cent of planners surveyed either did not know or did not see themselves working in the planning profession in the next five years.[115]

International studies also highlight similar trends – with many planners turning away from traditional roles in the public sector. In the UK, the Royal Town Planning Institute (RTPI) noted that 82 per cent of respondents in the public sector said their employer struggled to hire planners.[116]

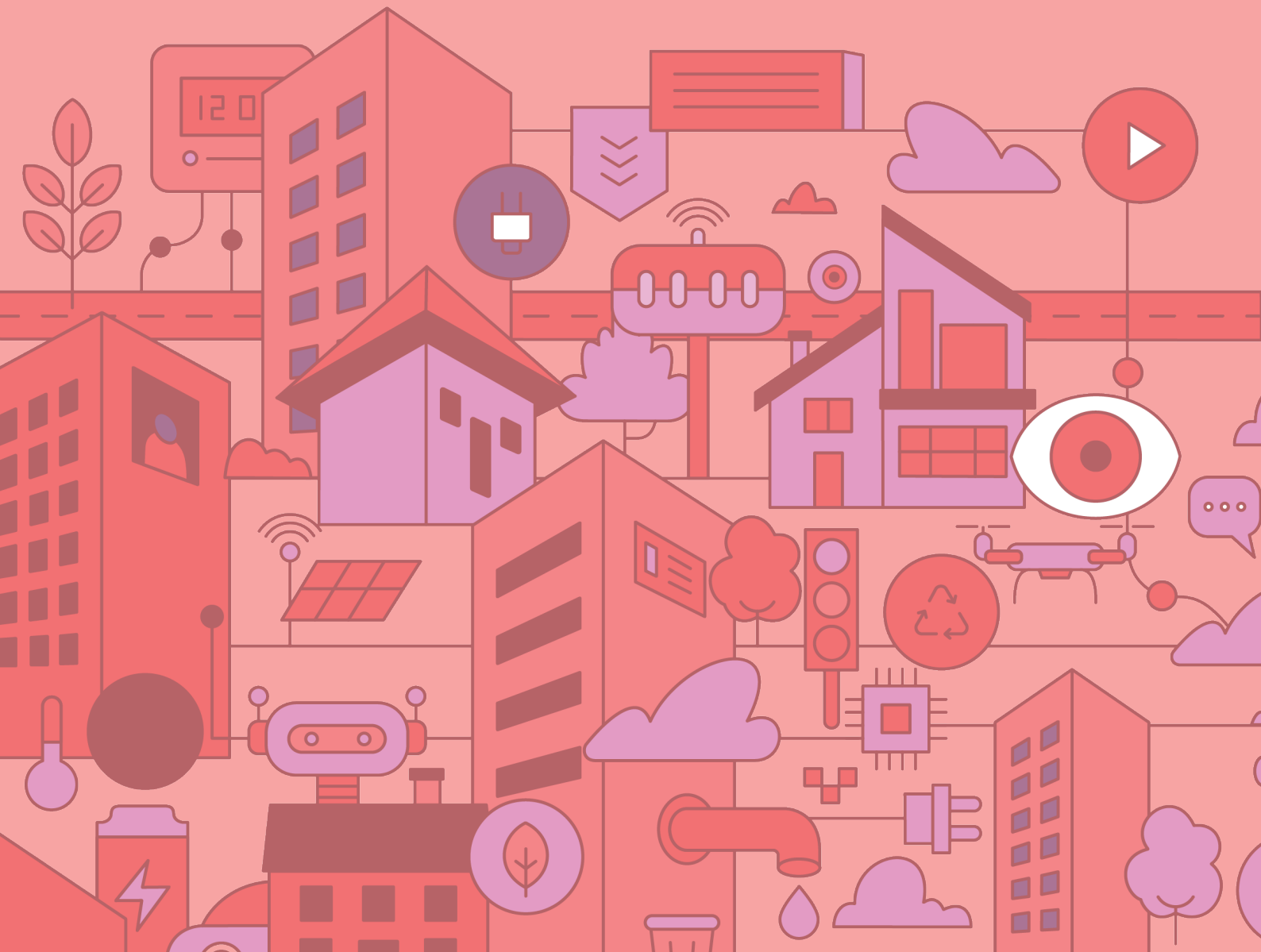
These are concerning trends that look likely to continue in the immediate future. In late 2023, PIA identified[117] a nationwide shortage of planners, which was particularly pronounced in regional communities. ABS data indicates that 43 per cent of local government areas don't have a planner working locally. This is coupled with the announced closure of a number of university planning courses, which will lower the future intake of professional planners in many states and territories.

There's a need for urgent efforts to grow the planning profession in Australia and to invest in and promote planning as a rewarding career – this is particularly urgent, if we're to stem the current shortage of planners and the long-term trend that will likely befall the nation in the years ahead.

Young adults drive the future trends of planning."

Samuel Austin PIA (Assoc.)
Urban Planning and Policy, JOC Consulting

THE PREPARATORY TRENDS BUILD RESILIENCE



Here we have identified trends that are emerging or anticipated to have significant future impacts. While these trends may not require immediate action, they require proactive preparation and planning – if we're to effectively address future challenges and capitalise on emerging opportunities.

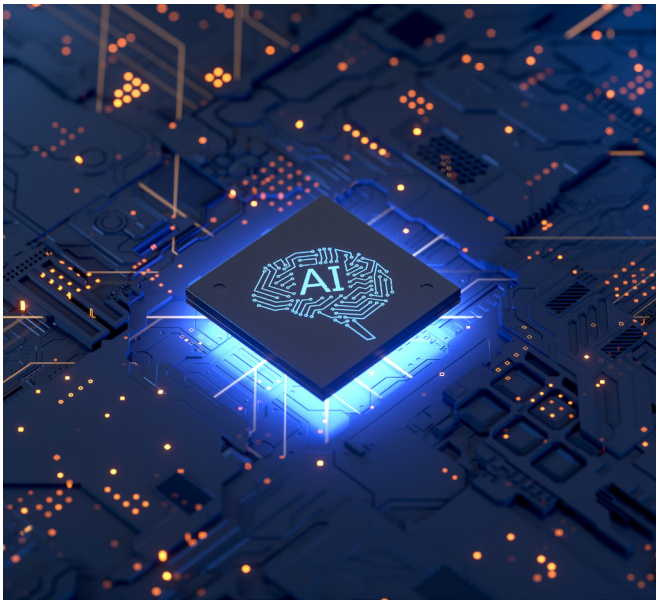
Many of these trends are not yet fully understood and will be influenced by the development of major trend patterns such as technological advancements, climate change and other societal shifts. We need to adapt and prepare for oncoming change to ensure that we as planners, and the profession as a whole, is equipped to deliver the best outcomes for our cities.

JOB REVOLUTION

Automation, gig economy and shifting work patterns

Evolving work patterns and work methods are reshaping our approach to what it means to work. Modern work patterns have been largely static for close to a century and disruption has been approaching for some time. Major innovations in technology are expected to continue to evolve and revolutionise cities across the globe – further impacting how we work.

These trends present a multitude of opportunities and challenges, for the future of land use as well as transport planning. Automation and AI have already begun streamlining work processes with questions being raised about job displacement and uncertainty about the future of certain roles.



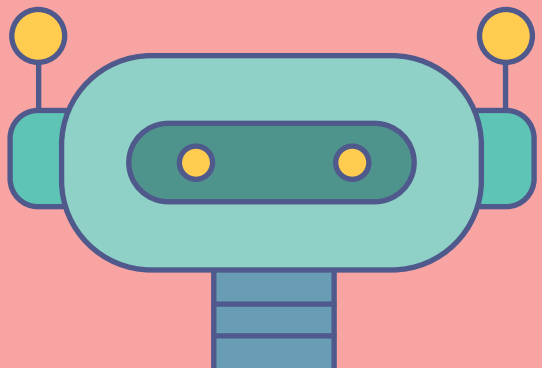
Automation and AI advancements

Automation is a key driver of the future job revolution. While automation technologies are evolving quickly, their impact on our cities and how we work remain a growing field of study. Trends relating to automation and technology can be difficult to predict with autonomous vehicles being one such area earmarked as a trend to transform cities around the globe, yet falling flat of this in its timelines.

Automation is an uncharted territory and many gaps exist in understanding how this transition will be managed.[118] At times, it has been viewed in a negative light with a looming fear of roles traditionally performed by humans becoming obsolete. While claims of net job losses can be exaggerated there will be a considerable skills disruption over the coming decade.[119]

There are several theories around how automation might change how we work. In the future, our existing land use planning patterns may change as a result of increased automation and the reduced need for large numbers of employees in manufacturing and other task related activities. This together with the future of autonomous deliveries by land and aerial drones presents a future trend that is not yet readily understood. Deliveries are increasingly characterised by small packages, high volume and varying frequency.[120]

Theories such as these present a change to how we might plan for the future of logistics and will need to be factored into how we future proof our cities, particularly when it comes to strategic planning. As a workplace disruptor, AI is similarly evolving at pace, yet studies point to tasks done by humans that are not easily automatable, such as tasks requiring complex perception and creative and social intelligence.



Continued growth of the gig economy and micro work

The gig economy has expanded and evolved rapidly over the past decade, accelerating in the post-COVID-19 pandemic world as an increasing number of people move away from traditional employment models. Many workers no longer need a fixed location in a CBD office environment or any office at all.

The gig economy has been described as an ever-growing socio-economic phenomena with increasing users joining a widening variety of sharing gig platforms.[121] It is reflected in everything from Uber to Airtasker and Airbnb – and research around its impact is expanding quickly.

An extensive study undertaken just before the COVID-19 pandemic found that 13.1 per cent of survey respondents had at some time undertaken digital platform work.[122] Given the array of gig economy platforms and expansion since then, we can assume that these numbers will have increased.

For planners, the rise in the gig economy is changing our perceptions of cities to one that needs to deliver ease and convenience.[123] Currently, many cities lack facilities for food delivery drivers to wait between gigs. If we're to prepare for the future, we need increased research and understanding as to the impact these trends will have on the built environment and the policy needed to support it.

Increased adoption of the four-day work week

The COVID-19 pandemic changed many things forever from accelerating technological advancements to making us think differently about how and where we work. The pandemic also left a long and continuing impact on our cities and urban areas. There's been considerable research undertaken as to the immediate effects the pandemic had on our cities but what is less understood is how lasting these impacts will be. Will our cities return to their pre-pandemic states or will they continue to evolve beyond what we understand them to be?

The four-day work week has grown in popularity around the world. Gaining attention due to a multitude of benefits to both employees and employers, it tauts increased productivity, reduced sick leave and increased overall happiness. What has been less understood and examined is the impact such a shift would have on our urban environment and the planet.

One of the benefits of the four-day work week has been linked to urban planning and the traditional sprawl of cities, as commuting distances increase in step with property prices in major centres.[124] This is the case for many people who live in sprawling cities such as Melbourne, Sydney and Perth.

Moving to a four-day work week might help to reduce urban pressures – such as traffic and congestion – within our major cities. Planners can no longer rely on traditional projection models of the five-day work week and we need to prepare for shifts in this standard and appreciate how the working week is evolving.

Office-to-residential conversions

During the COVID-19 pandemic, how and where we work changed dramatically. We quickly learnt that being in the office everyday was not necessary for productivity; and as a result, this has had a lasting impact on the use of office space in Australia. Other than Hobart and Canberra, the majority of our capital cities' office space have a vacancy rate of more than 10 per cent. As of January 2024, the national vacancy rate was 14.1 per cent.[125]

Of the many suggestions and strategies to deal with vacant office space, one that keeps arising yet not advancing is office-to-residential conversion. Internationally, we have seen a push to convert empty offices into apartments as a double pronged solution to office vacancy rates and the housing crisis. Theoretically, they can be a form of adaptive reuse and provide housing more sustainably.[126]

Yet many argue that office-to-residential conversion fails to offer the same amenities as purpose-built residential accommodation, with reduced levels of natural light, poor ventilation and limited outdoor space. Faced with design difficulties and policy preventing conversions from taking place, the theory of wide scale office-to-residential conversion remains for the most part, a topic of debate.

While opportunities for pilot schemes are being investigated in many of our cities, internationally, there has been a greater shift towards conversions. For example, New York City created 5,900 units from office-to-residential conversion between 2010-2022 linking much of this drive to the post-COVID-19 pandemic office market.[127] In the UK, planning rules were relaxed to encourage the conversion of empty commercial space, delivering an estimated 102,830 homes between 2015 – 2016 and 2022 – 2023.[128]

While a groundswell of activity is happening internationally, planners must prepare for the possibility of more conversions in future. This could mean investigating suitable policy and legislative amendments to encourage lower-grade stock to be used for appropriate models, such as build-to-rent and understanding the benefits of such developments from an adaptive reuse perspective. In Australia we've had some success converting offices to residential homes with the Australian Unity headquarters in Melbourne, which opened as an assisted living and aged care facility in 2023.

EXTINCTION AND RESOURCE SCARCITY

Food and water security, continued migration and ecosystem and resource depletion

Food and water insecurity

By 2050, the global demand for food is likely to be 50 per cent higher than today.[129] Yet Australia is in a unique position. While we are the world's driest inhabited continent, we export 70 per cent of produced food.[130] [131] Half of the Australian landscape is used for farming – 87 per cent of which is used for grazing cattle.[132] Yet agricultural land is the biggest driver of habitat destruction, and the sector produces almost 15 per cent of the nation's greenhouse emissions.[133]

In 2022, food insecurity impacted 3.7 million Australians and in recent years, we've seen an increase in extreme weather events.[134] The COVID-19 pandemic further highlighted Australia's susceptibility to the effects of shocks such as supply chain issues; while climate change is, and will likely continue to be, a key driver of food insecurity through the increased likelihood and ever-growing impact of extreme weather events.

The availability of water is one of the key impacts of global warming on food security. In Australia, we're witnessing higher occurrences of drought and periods of extreme dry weather. The Australian Security Leaders Climate Group predicts that in 2040, Australia will experience high water stress with 40 to 80 per cent water withdrawal.[135]

This would severely impact the way farmers, governments, planners, and the wider population operate – and place thousands, if not millions of people under stress. Extreme heat not only reduces our water supply but can result in lower crop yields, livestock stress, increased vulnerability to pests and diseases, lower nutritional value in staple crops and higher operational costs.

All of which impact our ability to produce food and bring it to market safely.[136]

The ongoing trend of water scarcity and its impact on the environment presents significant challenges for urban planners in Australia. The competition for water resources between agriculture, industry and domestic use is expected to increase, driven by climate change and population growth.

The Murray-Darling Basin, one of Australia's most critical water sources, reflects this challenge. Due to climate change and the increase in population, water supply is declining and demand is growing, leading to intense pressure on the region's water resources. Effective collaboration and communication between states and communities are crucial to address these challenges.[137]

Even if food can be produced, there's a risk it may not reach the population. Australia's food supply chains are usually adaptable; however, extreme events such as floods, bushfires and even non-environmental shocks, such as labour supply disruptions and international hostilities, can stop supply to high population areas.

Farmers for Climate Action suggest that[138] it is almost certain some parts of Australia will one day run out of food. These impacts would likely lead to increased costs for retailers and consumers.

This is also an issue for our neighbours in the Asia-Pacific region, which is considered a 'disaster alley' for impacts of climate change.[139] This could be a major issue for Australia's human and economic security. Not only will our food and water security systems be disrupted but any insecurity in the region will likely stretch our humanitarian support systems which may be needed at home.

Urban planners must consider the impact of climate change on water resources, and plan for potential conflicts over water use. As water scarcity becomes more pronounced, planners need to find innovative solutions to meet the needs of growing urban populations.

Water scarcity can undermine food production and pressure ecosystems and urban infrastructure. This trend requires careful planning and policy-making to ensure we have sustainable water management and can mitigate any conflicts over resource allocation.

Continued migration and urbanisation

As indicated earlier, the coming years could see an increase in external migration to Australia for a number of reasons. As a nation, we already have a comparatively high number of migrants, around 30 per cent of the population.[140] Despite a dip during the COVID-19 pandemic, it's expected that Australia's population will continue to grow over the medium to long-term.[141]

Migration and immigration are widely contended and controversial topics, due to the many layers and lenses which inform the discussion. However, it is commonly held that international migration can have many positive effects.

By 2050, Australia's population is expected to reach 38 million people.[142] This will be driven largely by migration, especially as the natural birth rate decreases.[143] From 2016 – 2017, migrants generated approximately 13 per cent of our national income ($112 billion).[144] By 2050, this will be approximately $1.6 trillion to the GDP.[145]

Migration has been known to have mixed effects on labour productivity but a conclusive positive effect on GDP.[146] People migrate internationally for a variety of reasons:

- Displacement during war.
- Urbanisation.
- Population increases in less developed countries leading to disease and overcrowding.
- Socio-economic development resulting in skills becoming obsolete.
- Growth occurring at a pace which makes it hard to find sufficient prospectives for young people.
- Income disparities.
- Climate change.
- Political unrest.
- Civil rights.
- Education (a large driver for migration to australia).[147]
- And the international division of labour providing greater opportunity for certain work in certain countries.[148]

International migration also has significant social impacts. Multiculturalism has been found to increase the social resilience of communities, and the tolerance formed through being surrounded by different people creates a more progressive society.[149] [150]

While external migration generally has a positive effect on the economy, and could therefore have a positive effect on living standards, the increase in labour productivity can also create productivity loss – when a larger labour force works with a fixed natural resource supply.[151]

By 2050, it's predicted that 66 per cent of the world's population will reside in cities.[152] It's not surprising then that the majority of international migrants also move to cities. As these urban areas face greater pressure to expand and densify, the impacts of these developments also broaden.[153]

Negative effects of increased population in our cities include urban heat, congestion, increased pollution and waste, overburdened infrastructure, wage decline and unemployment, shortage of affordable housing and pressure on our increasingly scarce resources such as water.[154] [155]

It's these effects, which may well be true at times, that help anti-immigration groups to argue and fuel distrust in the government and planners alike.

Despite an internal wave of migration out of urban areas during the COVID-19 pandemic which had its own effect, the overall trend of urbanisation is a driver for the redistribution of resources, when resources are directed toward centralised locations.[156] This requires the adaptation of infrastructure systems to accommodate new growth patterns.

When seen at a large scale, internal migration raises similar concerns; however, the drivers differ slightly. The top two reasons for internal migration are family and jobs.[157] Comparatively, Australia is a highly mobile country with 39 per cent of people changing address at least every five years.[158] Internal migration has slowed over the past half-century with people aged 20 to 40 years old moving less often today than previously.[159] This can be attributed to an ageing population, the increase in dual-income households and even the cost of living.[160]

If we see these migration patterns evolve in future, we will need appropriate mechanisms to control this urban growth in a sustainable way. The PIA argues that government attempts at influencing urban environments through major infrastructure investment and immigration policies lack accountability for special considerations and are 'spatially blind'.[161] Similarly, Infrastructure Australia supported this notion stating that a 'failure to think holistically inhibits consideration of cumulative and longer-term pressures'.[162]

Continuing depletion of natural resources

In 2021, the Australian Government's State of the Environment Report declared the outlook for our environment as deteriorating.[163] Competition for natural resources and unsuitable development has left our land and water-based natural capital in continued decline.[164] There's concern surrounding our conduct with natural resources. Humanity is not separate from the natural world. Its deterioration impacts all facets of our lives and people – making the natural world key to our survival.[165]

The clearing of land to facilitate mining, agriculture, mineral extraction and even renewable energy systems has detrimental effects.[166] This, coupled with climate change, already impacts not only our health and the environment's but the ability of inter-related primary industries to operate.

For example, less rainfall increases soil salinity which then inhibits the productivity of agricultural lands.[167] The agricultural sector accounts for 16.8 per cent of Australia's total carbon emissions, altering rainfall patterns.[168] [169] Abnormal rainfall patterns also impact natural flora systems; change soil conditions and water patterns; impact the soil's ability to absorb carbon; alter erosion; modify waterways and landforms; impact soil stability and increase siltation levels among many other biotic and biotic processes.[170] [171] [172] All of which then impacts the operations of primary industries.

Another example of the inter-related nature of depleting natural resources is tourism. Many tourists, local and international, travel to destinations for the beauty of the natural environment. The transport to arrive at these destinations, and any treading on or interaction with the ecosystems and the waste, emissions and water generated from their accommodation, negatively impact the very environment they wish to appreciate.[173]

It's no secret that our nation's economy is highly dependent on natural resources. In fact, $900 billion of Australia's economy depends directly on nature, and as a result there's some debate around leveraging our natural advantage while depleting our natural resources.[174] Sectors with a very high direct dependence on nature such as agriculture, water services and construction generate 16 per cent of Australia's GDP annually and are responsible for over three quarters of Australia's export earnings. While sectors with a moderate to high direct dependence such as real estate, mining and transport contribute 33 per cent of GDP.[175]

Indirectly, it could be argued that every single dollar in the Australian economy depends on nature when considering value chains.[176] Therefore, the environmental degradation and the depletion of natural resources, which many sectors directly contribute to, is also a financial risk for these sectors.

The trend of increased urbanisation and population growth mentioned in the previous section, also places immense pressure on natural resources while being at risk due to this pressure.

As urban areas grow, they increasingly consume more energy and material resources.[177] In many instances, this growth continues to rely on ageing or old infrastructure which is inefficient, causes congestion and creates wasted resources.[178] The inconsistent distribution of infrastructure, resources and other liveability factors then results in measurable inequalities throughout urban areas.[179]

Some argue that Australia doesn't have a framework which delivers holistic environmental management that integrates the legislative and institutional, national, state and territory systems, to break down barriers and stimulate new models and partnerships for innovative environmental management and financing.[180] To build our resilience, collaboration and cooperation between governments, business, communities, planners and importantly, First Nations people is key if we're to achieve balanced outcomes and arrangements.

Ongoing threat to ecosystems

Predicted to have long-lasting, severe consequences, environmental degradation is considered a threat to humanity.[181] The World Economic Forum identified the top five global risks most likely to cause significant impact within the next decade – all of which relate to the environment.[182] Our thousands-of-years-long period of climate stability is ending, with the risk of ecosystem collapse likely to create irreversible consequences for humankind and a permanent destruction of natural capital.[183] [184]

While the Australian Government and our respective State Governments have mechanisms in place to monitor and protect at-risk and fragile ecosystems, compliance with environment laws is not a sufficient management strategy supported by the Australian Conservation Foundation. In fact, our strategies do not yet match the scale of the challenge.[185]

For example, several of our plant species are listed on endangered lists at a state level but are not listed federally.[186] And our country's isolation has allowed for its flora and fauna to have a high-level of endemic species.[187] While approximately 10 per cent of the world's plants are in Australia, plants comprise 73 per cent of the national threatened species list.[188] Australia has also lost more mammal species than any other continent.[189]

Habitat destruction and climate change are driven by many of the same threats, including the mismanagement of natural resources and associated practices.[190] They are also the two major threats that impact our ecosystems as they have many repercussions.[191] [192] Ecosystems do not operate on their own. Different ecosystems interact and support each other, much like the biotic and abiotic components within an ecosystem – an impact to one, affects all.[193]

Most threatened species face on average, four different threats which may interact and be cumulative, exacerbating the threat.[194] Almost 20 per cent of Australia's native frog species are extinct, threatened, critically endangered, endangered or vulnerable; and, the majority can be attributed to the chytrid fungus occurring in the most urbanised areas of Australia.[195] Disease is just one of the threats that Australian species and ecosystems face, which have been driven by climate change and land clearing.

Other examples include but are not limited to the following:

- Drought and the effects of water regulation and bushfires resulted in the deaths of many fish in the murray-darling basin during 2017-2020.[196]
- Mining activities can threaten populations and species of subterranean fauna and groundwater systems.[197]
- Habitat destruction leaves our plant populations fragmented and vulnerable to invasive species, with more foreign terrestrial plant species in australia than native, currently.[198] [199]
- Water pollutants such as fertiliser impact the microorganism levels in freshwater which can suffocate aquatic species and make the water and surrounding environments unsuitable for habitat, consumption and use.[200] [201]
- Insect biodiversity is at risk due to the clearing of native vegetation, inappropriate fire regimes, invasion by weeds, non-native predators, changes in climatic conditions, trampling by grazing and feral animals, and habitat fragmentation leading to loss of natural corridors.[202]

The natural environment plays an important role in supporting our food and water systems and there are collapses occurring in critical regions. In the Murray-Darling Basin, a water system that supports more than 30 per cent of our national food production, the degradation of Mountain Ash forests is reducing the drinking water for five million people in Melbourne.[203]

A recent study by a group of climate scientists suggests that at least 19 ecosystems in Australia are currently collapsing.[204] These ecosystems are located all over the country and range from tundra to coral reefs. When considering this, and the fact that 93 per cent of terrestrial habitat used by threatened species was not referred to by the Australian Government or assessed under the Environmental Protection and Biodiversity Conservation Act between 2000 and 2017,[205] it's clear we need to listen to this wake-up call.

As planners, we can open our eyes and do whatever we can to help prevent further loss of these important ecosystems into the future. If we're to lose these ecosystems, there will be a significant intrinsic, cultural and ecological values effects, as well as major physical and mental health, social and economic consequences. [206] [207] [208]

BLURRED LINES

The real and virtual worlds converge

As technology continues to evolve, our virtual world is becoming increasingly complex and sophisticated. While planning inherently involves thinking about the future and assessing the impacts and implication of change, as a profession we can be slow to adapt and adopt new technologies.[209]

This uptake requires imaginative capabilities and more often than not, outlining what these changes will entail in lengthy reports and traditional maps. Technology offers a host of fresh opportunities to explore future impacts through augmented reality (AR) and virtual reality (VR). These can help visualise future planning concepts and simulate the impacts of proposed developments. In addition, the growth of smart cities introduces another layer, with data and sensors contributing to outputs.

Increased smart city integration

Smart cities are changing the ways we live and work in cities, how urban environments are planned and governed, and re-shaping the property market.[210] The smart city model integrates digital, physical and human systems in the built environment to make traditional networks and services more efficient for the benefits of its inhabitants.[211]

Through the integration of a range of technologies, cities with smart elements are expected to have more efficient resource management, enhanced safety and security, improved urban mobility and higher environmental sustainability metrics.[212] While smart cities offer a multitude of benefits and provide an opportunity to build better precincts, more sustainable communities and develop new industries, any development could also have generational planning errors[213] as infrastructure, planning controls and land-use change the urban landscape for decades once put in place.

Integration of smart city elements into urban planning, design and experience can improve the planning and decision-making of place managers by providing local and real-time data as how places are used.[214] [215] In turn, this can enable more customised planning and improve amenity and community outcomes. The smart cities idea can encompass a wide scale of integration – from implementing one or two technologies targeted to a local area, to full-scale precinct or neighbourhood developments.

Critical for increasing the integration of smart technologies is the provision of digital connectivity and enabling infrastructure.

Increasing density of digital networks and appropriately placed physical infrastructure – that is designed to house and support place-based technologies – will become an increasing trend in the urban environment. It is one that needs to be addressed carefully through planning processes to ensure that it improves urban liveability and does not impact amenity.

Fast internet is key to a successful smart cities network and the roll out of 5G may help to support smart city initiatives in Australia. Our fixed-line download speeds rank 67th in the world and around half of NBN households in Melbourne, Sydney and Brisbane are serviced by outdated infrastructure.[216] Australia's Bureau of Communications and Arts Research found that our existing network is inadequate to cope with future demand.[217] A key trend for planners will be the ongoing integration of 5G connectivity into urban streetscapes to facilitate this improved foundational digital capacity.

Australia has more than 45 major smart city precincts and precinct programs under development – all in different stages of early maturity and with more continually being created.[218] In 2016, the Australian Government showed explicit interest in smart cities with the release of its Smart Cities Plan, which aimed to advance national infrastructure and delivery, the prioritisation of high-tech industries and the growth of the digital economy.[219] In addition, the government's $50 million grant scheme – the Smart Cities and Suburbs Program – has funded at least 81 projects.[220]

This government support enabled many cities across Australia to explore smart city opportunities in their local areas, with a variety of outcomes. In the future, there are many smart city elements being developed and integrated today that are likely to feature in our Australian cities.

The Internet of Things (IoT) is a key component in smart city initiatives, integrating sensors and connected devices into infrastructure to enable real-time data collection and monitoring.[221] This data can inform management strategies and policy in areas such as waste management, smart transportation systems and environmental monitoring.[222] [223] AI can also play a role in this area, taking large data sets, analysing and then deriving insights, which can assist with predictive maintenance and the optimisation of services.[224]

Another key component of smart cities is digital equity and trust. Smart cities need to be developed with a keen focus on the digital literacy of its community members, to ensure benefits are equitably distributed. There's an evolving and important trend to focus on building the capability of residents to understand and use digital technologies, consuming data to make more effective decisions. Digital Trust for Places and Routines is focused on improving this by increasing transparency when data is being collected, through methods such as signs that display information about why data is collected and who can see it and QR codes to facilitate feedback.[225]

Digital twins, when linked to wider strategic planning tools, can facilitate 'what-if' scenario building and better predict outcomes, while also shaping community collaboration.[226]

An accelerating trend in smart cities integration is its overlap with society's net zero and urban decarbonisation priorities. Similarly, worsening climate change impacts are increasing the demand for greater climate action and circular design principles. The integration of renewable energy, efficient materials and sustainability principles is key to the smart city design, creating a market for the integration and development of these technologies.

Increased deployment and integration of smart cities technology and data can improve the efficiency of resource use and allocation. It's also central to sustainability initiatives that rely on data and dynamic management of resources, such as distributed energy systems, micro grids and virtual power plants, and energy efficient buildings. But this future is not without its challenges. To deliver smart cities, public-private partnerships will need to be leveraged if we're to untangle the potential effects of allowing sensitive data, collected by IoT, to travel through too many hands.

While the COVID-19 pandemic increased digital literacy and generated greater tolerance for data-collection technologies, smart cities are often the subject of fearmongering and anti-government sentiment fuelled by the media narrative that smart cities focus on surveillance.[227] [228] This, coupled with the potential for smart cities to exacerbate inequalities and the digital divide, leave a large space for community pushback.[229]

In order for smart city technologies to be implemented, let alone for them to succeed, we will need to gain and maintain the public's trust, consider all potential inequalities and create privacy laws at the same pace or ahead of technological development that is continually tested and reviewed.

Cybersecurity measures to safeguard urban infrastructure and data

The implementation of new technologies raises numerous cybersecurity issues.[230] As cities become 'smart' they become more connected and the digital infrastructure required becomes more complex, which makes it more vulnerable to cyber-attacks.[231] The data and information held in smart city technologies is vast. This makes them an attractive target for malicious attacks. The security and integrity of smart city technologies should be treated no differently than an organisation or institution intent on protecting citizen data and information.

A number of potential threats have already been identified such as eavesdropping on information sent by sensors, distortion of information collected and delay or interference of message collection.[232] Yet, in top urban planning, public administration, city management and public policy journals, only a few articles mention cybersecurity at all.[233] Recent studies show that many smart city programs lack publicly accessible security measures, highlighting the risks and vulnerabilities these systems face if left unchanged.

As smart cities evolve, we need some level of intervention to address the resulting cyber threats and enable smoother and safer implementation. With the uptake of smart city technologies across Australia, we need a corresponding uptake of security measures to ensure that our data and information remains safe and that systems are not vulnerable to attack. While much of this can be done now, we need to prepare more holistic and rigorous security measures to meet the future.

I think we're underutilising technology. We've got this opportunity to have these virtual spaces where we can replicate reality."

Nicholas Kamols PIA (Assoc.)
Co-founder, PowerWells

Augmented reality changing how planners engage with communities

Participation and community engagement are two of the cornerstones of planning. Planners seek the views of those who will be impacted by changing urban environments and incorporate these into final outcomes. Imagining future urban environments can be a challenge for many when using traditional visualisation aids, such as two-dimensional imagery and three-dimensional models which often fail to provide a complete picture.[234] In addition, these traditional forms of participation present poor incentives, especially for young citizens and tend to engage older populations. As a result, other citizens needs, often those most affected by urban planning, are not considered.[235]

AR presents an opportunity to increase participation in planning and in the future, could be embedded in existing planning processes. AR allows objects to be digitally simulated in the real world through smart phones and other devices.[236] By embracing digital technology like AR we make planning more accessible to more citizens and engage people more meaningfully throughout the process. While many prototypes have been developed and explored, the ability to scale AR technology from prototype to large-scale consumer technology is some years away.

AR has the potential to grow citizen engagement in the planning process. It incorporates real world surroundings, ensures comprehensibility, and can in principle increase the acceptance of planning projects.[237] Long-term impacts around the suitability of AR in the planning process are not yet clear. But given the rapid technological advancements we're witnessing, we need to prepare for more widespread use of AR in future. As with any technology, AR comes with risks in terms of security and costs, but it also presents opportunities for enhanced engagement in terms of reach and outcomes.

We're still doing a sort of digitised version of traditional engagement. It's not really the paradigm shift towards an alternative to what we're already doing. We've got so much data available that we could be using this in various ways to get increased representation from the community."

Nicholas Kamols PIA (Assoc.)
Co-founder, PowerWells

NEW METHODS OF TRANSPORTATION

Reduced use and ownership of private motor vehicles

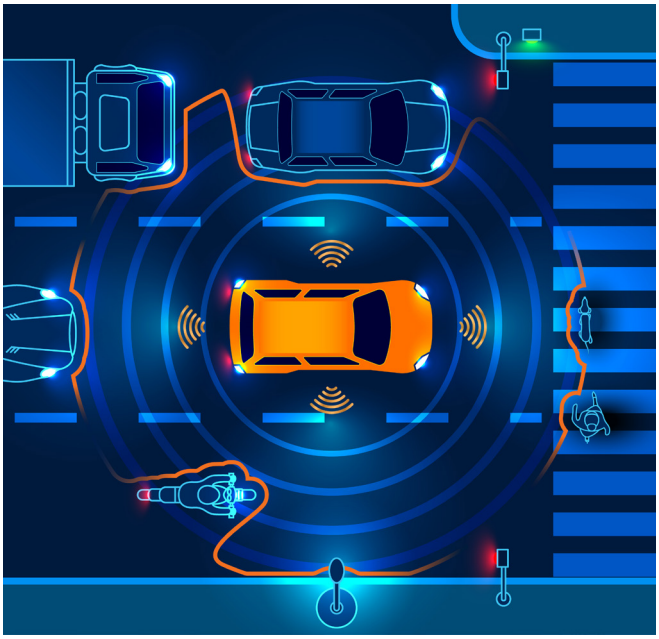
A significant trend that could recast our cities in the near future is a decline in people using and owning private motor vehicles. This trend is highly uncertain though and how it evolves depends partially on how planners shape and implement alternatives.

The most obvious alternative to private car ownership is public transport. For younger generations where car ownership is less entrenched, public transport accessibility can be a decisive factor in where to live.[238] Planning our cities to integrate transportation and density will contribute significantly to reducing private car ownership – something planners must be mindful of in future.

The rise of car-share services such as Uber and GoGet had the potential to revolutionise car-ownership. Yet, in the last decade, shared vehicle implementation has not contributed to a reduction in cars on our roads nor congestion. Instead, in the United States at least, the rise of car-share services contributed to a decline in public transport usage.[239]

Autonomous vehicles (AV) add another layer of complexity to rates of car ownership. How AVs are implemented will determine whether they reduce private vehicle ownership. Without a requirement to have a driver's license to use a fully automated vehicle, groups such as young people that have been historically excluded from driving, may take to the roads in their own AVs – potentially leading to an increase in car ownership of private motor vehicles.[240] Consumers may also be incentivised to purchase an AV if they can rent it out when it's not being used to recuperate some of the cost.[241]

However, researchers have hypothesized that AVs might decrease car ownership if shared AVs that are not privately owned become mainstream.[242] If AVs do contribute to a reduced use of private ownership vehicles and aggregate cars on the road, planners will need to rethink the way we plan our cities.



Autonomous vehicles – planning for their integration

As mentioned in Act Now, AVs are moving out of the realm of science-fiction and onto our streets. They could be as significant a shift as the replacement of horses by cars a century ago. As planners, we should be planning for their arrival as AVs have very different needs from traditional vehicles.

A traditional car spends 96 per cent of its life parked, taking up space in our homes and cities.[243] This has historically led to large parts of our cities' being used as parking. Melbourne alone has enough parking to cover three quarters of the CBD.[244] AVs have the potential to spend time they would otherwise be idle, transporting other users. This could be through shared vehicles, where the vehicle is not owned by an individual. Or an AV owner might rent out their vehicle to be used while they're at work.

For planners, this creates a significant challenge – and opportunity – to reimagine swaths of our cities for land use other than car parking. Yet while the need for car parking may be diminished, AVs may require more space for temporary stopping or pick-up/drop-off than afforded presently in our cities. This is especially true if AVs are integrated into our public transport network – which is a major opportunity.

New South Wales is currently embarking on a Transport-Oriented Development (TOD) program across Greater Sydney.[245] It's accepted that AVs will not replace mass transport, despite some international government officials expecting this to occur.[246] Yet we have an opportunity able to supplement TODs and mass-transit like metro and heavy rail with AVs.

Many mass-transit stations are currently served by buses that feed commuters into metro and heavy rail to get around the city in a high-capacity network. AVs serve as an opportunity to provide an alternative to bus routes, one that might be more efficient, transporting people to and from TODs in an intermediate vicinity where a bus service is less feasible or desirable.[247]

AVs are also expected to reduce the volume of vehicles on our cities' roads. Yet another opportunity to city planners, our roads may soon have greater capacity to be reimagined for public and active modes of transport.

Source: Unsplash

CLIMATE RESILIENT INFRASTRUCTURE

Green and blue infrastructure to manage stormwater and the urban heat island effect

Green and blue infrastructure is designed to help manage excess stormwater and combat the urban heat island (UHI) effect, which can increase temperatures in urban areas by 4°C.[248] Implementation of green and blue infrastructure can dramatically reduce the UHI effect and create more liveable cities. This is especially important given that by 2025 over two-thirds of the global population will be living in urban areas.[249]

Green infrastructure comes in many forms, ranging from parks to green walls and roofs. Similarly, the impact that green infrastructure has varies widely depending on the type of vegetation and the method of implementation.[250] However, a study of UHI mitigation in Europe determined that a 16 per cent canopy coverage in a city can reduce the average summer temperature by 1°C.[251]

Blue infrastructure also has the ability to mitigate UHI; however, its effectiveness is less researched and it is considered to be less effective overall than green infrastructure.[252] This hasn't stopped cities around the world experimenting with the concept. In Stockholm, Sweden, a significant transportation junction and waterway is being redeveloped to create a new 'water plaza'.[253] Slussen will incorporate the natural waterways between two islands to create recreational space in and around the water, to provide amenity and cooling to its citizens while still functioning as a major transportation node.

At home, Australia is well poised to utilise blue infrastructure, with our major cities all situated on the coast and around large bodies of water such as a bay, harbour or river. Sydney Harbour is a prime example, being one of the largest natural harbours in the world, running right through the heart of the urban area. Brisbane, situated along a river, has a spot for residents to enjoy the 'blue infrastructure' with an artificial beach.

Opportunities to create spaces for residents to cool off during a hot summer's day are plentiful in Australia, and planners should be mindful to make the most of our cities' natural assets.

Flood resilience measures

Floods are increasingly more common in this era of a warming climate – as the scale and volatility of cloudburst events are amplified.[254] In recent years, Australia has seen significant floods across the country, including in Brisbane and Sydney. It is well noted that many of our cities and settlements are in areas that experience flooding but since relocation of our centres is unfeasible, flood resilience measures need to be implemented.[255]

Cities around the world have started implementing a variety of infrastructure solutions to mitigate the impact of flooding. In Rotterdam, The Netherlands, 'water squares' have been installed to hold water during significant wet periods, but when it's dry, function as a community space for sports.[256]

As our cities grow and climate change worsens, flooding events will only become more prevalent. The implementation of flood resilience measures can take several decades and significant resource investment.[257] Therefore planners will need to incorporate flooding into early stages of strategic planning and make a shift from flood assessments being undertaken largely at the Development Assessment stage.[258] The planning profession should also work with urban design teams to deliver place-specific and risk-based solutions to floods.

We don't learn from our mistakes. Lismore was rebuilt three times and they are only now thinking about relocating people out of the floodplain... look how many land releases in the last 30 years have been built in Western Sydney on flood plains. Failing to learn from our mistakes is a failure in terms of planning."

Clare Brown MPIA
Director, Urbis

Mandating sustainable building practices

Australia's built environment sector is responsible for 20 per cent of our total emissions.[259] While this is below the world's average of approximately 37 per cent, its remains a significant portion of our nation's overall emissions.[260]

Reducing emissions in the built environment has historically focused on the operational stage in a building's lifecycle with limited regard given to the construction of a building, which can represent a significant carbon footprint. Over half of a building's energy consumption is used for heating, ventilation and air conditioning – all of which can be reduced through considered building design.[261]

Planners must ensure that developments seeking to be sustainable in one aspect must not compromise in another. Sustainability should go beyond environmental considerations and consider the social, economic, and governance outcomes that arise throughout a development's lifecycle.

Green buildings in Australia have typically been achieved in newer, higher-end developments. Yet the benefit of sustainable building practices on the economic and social health of lower-income households is immense. Studies indicate that low income households could save 25 to 60 per cent in utility bills if sustainable building practices are embraced for affordable housing.[262]

Community driven resilience

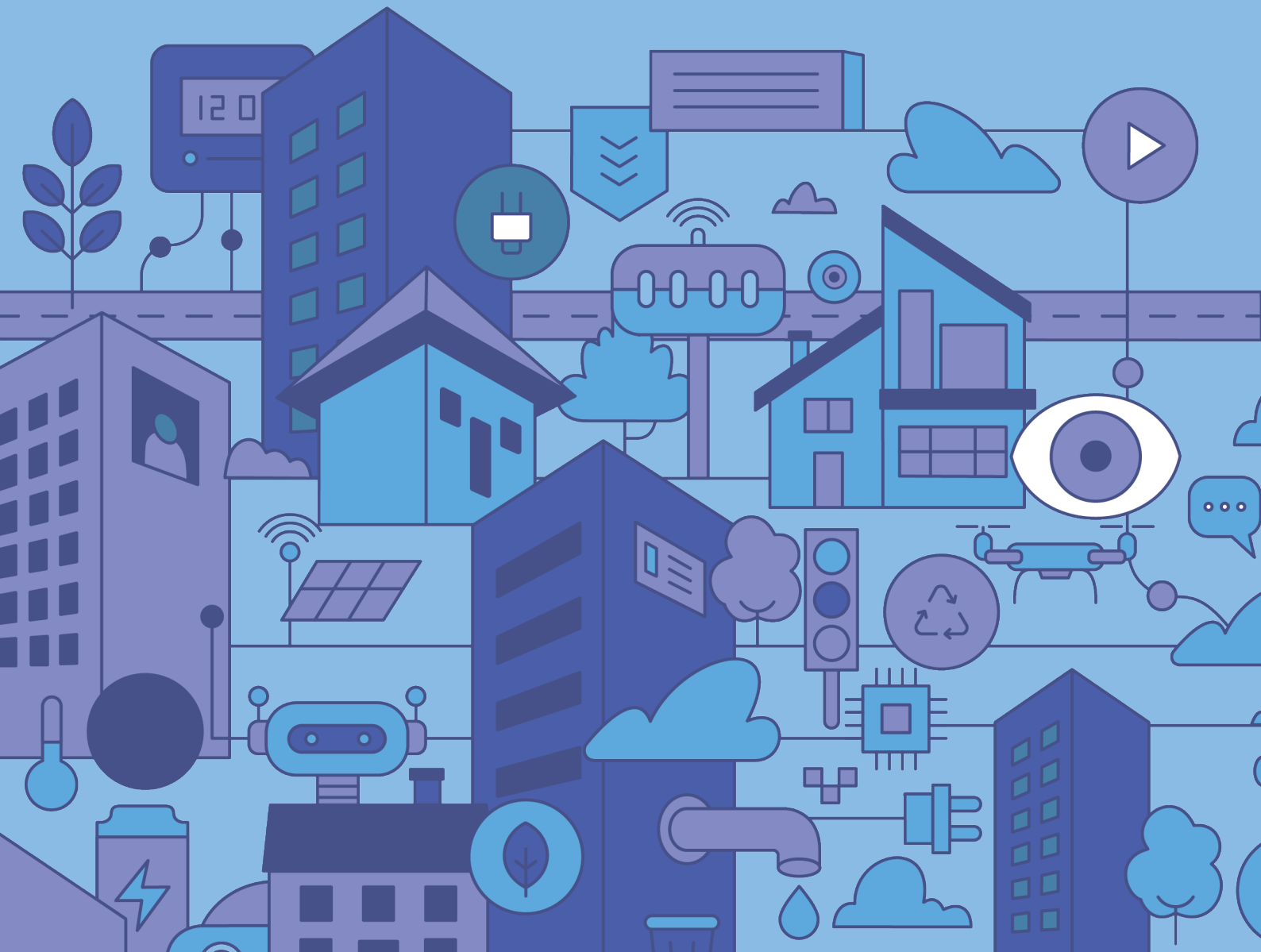
As mentioned in Act Now, a key aspect of resilience is fostering community engagement and preparedness. A community's ability to respond to external shocks relies on its ability to adapt, access to suitable emergency response planning and trust in local officials. The future is likely to see an increasing risk of interruptions to critical infrastructure due to climate related events, such as heatwaves or floods.[263] Planners will need to ensure that the community is equipped to deal with these interruptions

Decisions taken at a local level can often be controversial and extremely costly to individuals. A sea wall constructed in the Northern Beaches, Sydney highlights this cost and controversy. The project, largely funding by local landholders, primarily protects private property at the expense of public domain.[264] The residents banded together to protect their assets with infrastructure approved by local consent authorities. Questions arise over whether local communities take precedence over the wider population who use public domain spaces. As climate impacts increasingly hit our cities and towns, some residents may find it prudent to take matters into their own hands. Planners needs to be deliberate about assessing risk and plan according to prevent undesirable outcomes.

Planning controls are emerging in Australia to deal with external threats, such as floods, to facilitate a quicker return to normalcy following an event. Following the 2011 floods in Queensland, new planning controls, including materials used and higher flood levels, has made the city more resilient – recovering from floods faster which benefits businesses and communities.[265]

As climate impacts increasingly hit our cities and towns, some residents may find it prudent to take matters into their own hands. Planners needs to be deliberate about assessing risk and plan according to prevent undesirable outcomes through appropriate controls and foresight.

THE MONITORING TRENDS OBSERVE AND LEARN



Here we have identified trends that are emerging or anticipated to have significant future impacts. While these trends may not require immediate action, they require proactive preparation and planning – if we're to effectively address future challenges and capitalise on emerging opportunities.

Many of these trends are not yet fully understood and will be influenced by the development of major trend patterns such as technological advancements, climate change and other societal shifts. We need to adapt and prepare for oncoming change to ensure that we as planners, and the profession as a whole, is equipped to deliver the best outcomes for our cities.

URBAN GROWTH AND FUTURE HURDLES

As our cities and urban centres continue to expand at unprecedented rates across Australia, how we accommodate future growth becomes increasingly complex. Urban planners are grappling with the realities of space constraints and the need for sustainable development, among other challenges.

This trend requires innovative approaches to urban expansion – with a focus on optimising existing spaces and retrofitting areas to support increasing populations. Key strategies include embracing flexible zoning to allow for adaptable land use and enhancing the resilience of homes against the growing threats of climate change.

Together, these efforts aim to ensure that urban environments are equipped to meet the needs of residents while maintaining vibrancy and sustainability for future generations.

Space squeeze: accommodating future growth

It's likely that our cities and urban centres will continue to grow at a gallop, with this trend accelerating in the decades to come. More and more people will need to be housed – much more than our cities have been built to accommodate. In some urban areas, developable land will be in increasingly short supply and funding won't be available to expand existing infrastructure. In the past, many cities have relied on expanding their fringes.

While this trend has been evolving for decades, the rates of change and pressures on our urban centres are anticipated to exponentially increase. Cities will face pressure to accommodate new growth within their existing footprint and retrofit suburbia and centres with increased density. This is difficult to achieve with rigid planning controls which separate land uses and often limit opportunities for mixed-use developments and innovation.

More dynamic and responsive planning frameworks will be needed to ensure planning can respond quickly to changing community needs, environmental considerations and economic trends.

Tackling liveability in existing urban areas: adapting existing homes for climate change

How our existing homes might adapt to climate change is becoming a critical issue across the Australian landscape as we face the increasing occurrence of extreme weather events, including severe heatwaves, bushfires and flooding. This progressing trend underscores the necessity for long-term strategies to make existing homes more resilient and able to withstand these environmental challenges. As climate change across Australia continues to pose ever-escalating risks, there will be a growing focus on enhancing the sustainability and adaptability of residential structures.[266]

Incorporating sustainable and resilient building practices into our efforts to withstand an evolving climate will become more important than ever. Enhancements such as upgrading insulation, installing water-resistant materials and integrating energy-efficient systems will be critical in fortifying homes against the diverse impacts of climate change. These improvements will not only contribute to reducing the carbon footprint of our homes but also enhance their durability and resilience against extreme weather events.[267]

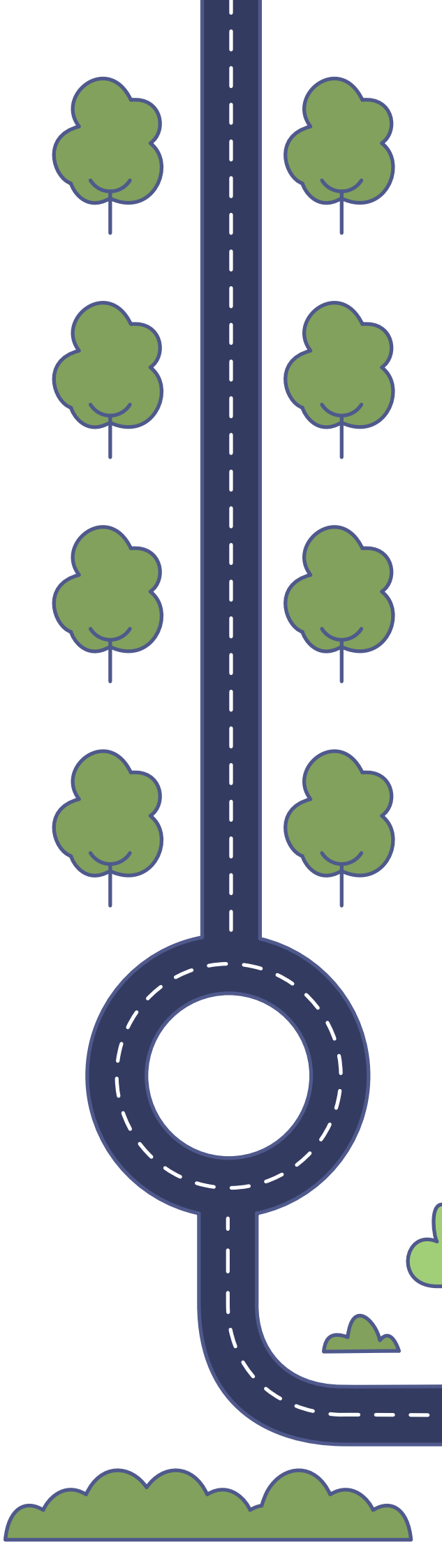
Urban planners are at the forefront of this movement, tasked with integrating climate resilience into the fabric of existing urban environments. They are called to action by communities increasingly tuned into and concerned about climate risks.

By monitoring and learning from past events, we can better prepare and adapt our urban environments. While safeguarding existing property may be one motivation, this trend also allows us to proactively prepare our urban landscapes for a sustainable future – ensuring our homes continue to meet the needs of residents in the face of a changing climate.

ROADMAP FOR CHANGING TRANSPORT

Transport patterns across Australia are changing. Partially accelerated by the COVID-19 pandemic, flexible working arrangements have become the norm. Today, the CBD should not be the sole focus of our transport networks. Yet changing these networks to respond to our cities' needs requires significant investment and political will.

Planning needs to consider assessment criteria beyond cost and economics, if we're to encompass a wider breadth of accepted assessment criteria and make decisions that meet the challenges felt by communities across Australia.



"I think the thing that is missing still is the breadth of accepted assessment criteria, because if we did include social impact more strongly in a decision-making exercise, then it at least allows that debate to become more public."

Dyan Currie AM RPIA (Life Fellow)
Chief Planner, Brisbane City Council

Long-term impacts of underinvestment in infrastructure

Investment in transport infrastructure is a vital component of a country's ongoing success. In contrast, consistent underinvestment in infrastructure results in exacerbating social, technological, economic, environmental and political issues.

Investment in infrastructure has the ability to be nation-shaping and contribute to improved quality of life. This is especially true given Australia's extremely high urbanisation rate with 90 per cent of our population living on 0.22 per cent of the continent.[268] Yet, infrastructure investment is incredibly expensive – a factor that weighs heavily on political decisions around funding.

Lack of investment in transport-related infrastructure can lead to increased congestion and reduced productivity – and eventually, significant financial loss. If our transport-related infrastructure suffered continued long-term underinvestment, the cost to the economy from congestion alone might reach $40 billion by 2031.[269] Whereas, if we reduce congestion and focus on long-term investment, we could deliver a $29 billion increase to Australia's GDP in the long term.[270]

In the coming decades, the back-end cost of implementing appropriate infrastructure, whether roads, trains, schools or parks, will be significant and likely reactive, requiring an expensive resource outlay. Urban planners must consider appropriate and cost-effective infrastructure investment that supports our growing cities and regions for the long term.

This trend requires careful analysis of projects and the impact these will bring to our communities, as well as identifying areas where infrastructure is lagging behind.

Public transport growing as a political topic

As transport projects grow in cost and impact, public transport has the potential to become a political topic in future. With more dialogue around public transport among politicians and in the media, public consciousness will increase. This could elevate the public's appetite to support innovative transport initiatives and the funding they require.

Public transport has a strong positive impact on property prices.[271] Debates over which suburbs get access to metro projects in Melbourne and Sydney, light rail projects in Parramatta and the Gold Coast or new passenger rail in Perth illustrate how these decisions can create political divides. These outcomes are not only relevant for landholders and developers but renters and those living temporarily in these areas who might get pushed out by increasing land values. This process – gentrification – can lead to significant character changes for neighbourhoods.

If public transport investment follows a trajectory of political polarisation in the future, political campaigns could start to make transport investment in certain neighbourhoods a key policy platform in order to win marginal seats. Planners should be wary of transport initiatives with the sole purpose of political gain – as these infrastructure investments may not be the most efficient allocation of resources or produce the better societal outcomes.

SOCIAL DYNAMICS AND ECONOMIC IMPACTS OF CLIMATE CHANGE

Climate change is having far reaching impacts across the globe. It is changing how we think and feel about our own futures and impacting on us as individuals both mentally and physically. We are seeing increased activities at local levels to rise above the noise and challenge governments and institutions to act on it, and as planners we have a key role to learn and watch about these trends as they evolve in the future.

Grassroots movements driving increased change in urban planning

Grassroots movements are not a new phenomenon in planning. We've seen the impact of community-led development projects, environmental sustainability advocacy, Indigenous communities calling for greater recognition and involvement, and affordable housing campaigns on planning decisions for decades.

What is new and continuing to evolve and grow grassroots movements beyond their local origins, are social media and digital platforms that enable campaigns to gain a wider reach. In addition, cultural shifts towards demands for increased social justice, along with the responsiveness of decision makers in recognising these concerns, are driving their growth globally.

Where grassroots movements are anticipated to grow in influence is in the realm of the politics and governance of sustainability.[272] We've previously discussed how youth movements are growing in scale and impact. The youth of today are eager to see change and will move into adulthood where they can arguably wield increased power over decision makers.

Climate change is affecting people's lifestyles and as soon as people feel like it's having an impact on them, there is more change."

Bunfu Yu MPIA
Senior Environmental Planner, Entura

Mental health struggles amidst inequality and climate stress

According to an integrative review, climate change is the leading public health threat of the 21st century.[273] While the physical threats are clear, for many there's a large and growing mental health danger which can be attributed to the increasing occurrence of climate change related events.

In this review, the Climate Council of Australia found that:

- 25 per cent of Australians are 'very worried' and 26 per cent are 'fairly worried' about climate change and extreme weather events in Australia.[274]
- More than half of the Australians who experienced a climate-fuelled disaster from 2019 – 2020 feel their mental health has been impacted, while one in five believe their mental health has been moderately or majorly impacted.[275]

Heat waves are associated with increased rates of admissions to hospital for mental disorders and increasing ambient temperatures are linked with increased rates of suicide, violence and aggression in the long term.[276] [277] Other prevalent mental health responses include insomnia, behavioural disturbance, anxiety, suicidal ideation, depression, PTSD, substance abuse and solastalgia – the distress caused by environmental change.[278]

While climate change impacts everyone, the most vulnerable among us continue to be the most vulnerable to mental health issues related to climate.

Migrants, especially those fleeing climate disasters, are more susceptible to poor mental health as they can experience loss of community and cultural connection, loss of access to natural landscape, and financial hardship.[279] [280] While those who rely on the land and our natural resources for their livelihoods are significantly more likely to experience flooding and bushfires than those in urban areas, making them particularly susceptible to mental health impacts resulting from this.[281] [282]

This is exacerbated by a severe lack of mental health infrastructure. In fact, those living in rural areas are more likely to say there was too little mental health support following a disaster than those in metropolitan areas, highlighting the clear socioeconomic and infrastructure divide between rural and urban areas.[283]

Rising insurance premiums as a result of climate change can then make it more difficult for Australians reliant on the land or natural resources to protect themselves and their livelihoods, which is an additional burden on their mental health.[284]

First Nations people globally are disproportionately impacted by climate and mental health issues despite contributing the least to these negative environmental changes.[285] [286] A traditional lifestyle reliant on natural resources, proximity to at-risk ecosystems, disproportionate economic distress and health disparities all contribute to the physical and emotional vulnerability of First Nations people.

Youth and young people also face climate-related mental health struggles.[287] The main driver for these feelings is a fear that governments are not taking sufficient action to protect their future and that they were being lied to about the effectiveness of actions taken.[288] Other at-risk groups include the elderly who are already more likely to face health and financial stress, and first responders. [289] [290]

In 2022, approximately 68 per cent of Australians were living in a local government area affected by extreme weather disasters.[291] The Intergovernmental Panel on Climate Change (IPCC) predicts with a very high degree of certainty that climate change is expected to further threaten mental health.[292] When considering this, the outlook for mental health outcomes in the face of increasing inequality and a rapidly changing climate is grim.

Planners and governments have a role in reducing socioeconomic and climate inequality through city design and policy and climate resilient design.

Risky business - insurance's expanding role in driving planning decisions

Urban areas are becoming more vulnerable and susceptible to risk from three main underlying trends: climate change and extreme weather events, smart urbanisation and socio-demographic shifts.[293] Some risks, such as natural disasters, are well-established and understood; others, such as rising sea levels and the vulnerability of smart power grids, are increasing in our awareness.

These trends have the potential to impact important parts of our cities' operations, putting our health, lives, livelihoods and assets at risk.[294] We must also navigate unintentional man-made hazards such as accidents and fire, as well as intentional man-made hazards such as war, terrorism and crime.

Urban areas present a complex environment for insurance due to the high concentration of people and economic value. With an increase in risk management, together with the increased uncertainty and frequency of climate change and natural hazards, insurers are becoming more cautious. There are already instances where insurance is becoming almost impossible to attain. This has the potential to significantly reduce the amount of developable land across Australia and lead to a risk-based approach by governments when it comes to identifying areas suitable for habitation.

Whilst PIA have been proactive and working with the Insurance Council of Australia following recent flood emergencies, planners need to monitor and learn about the future of this trend which interplays directly with trends around climate change and resilience. While it's uncertain when decisions around insurance will become more of a driving force in planning decisions, this trend will no doubt be impactful.

Battling waste management in a world of overconsumption

As the world comes to realise the increasing effects of unsustainable resource use and develop more awareness around the ethics of wasteful practices and consumerism, it's clearer than ever that we need to operate in a more sustainable way.

Australia is behind the global community in our waste practices, as our economy has high material flows but low circularity meaning that we extract a large volume of resources and yet only a small amount is recycled.[295] As a nation, we export most of our primary materials and import most of our consumer goods.[296] In 2021 – 2022, Australia generated almost three tonnes per person of waste (75.8 million tonnes) with a resource recovery rate of 63 per cent.[297]

Yet our approach to waste is slowly changing.[298] For example, despite being the generation that contributes the most to fast fashion, Generation Z are some of the most likely to pay for sustainable products.[299] [300] Similarly, consumers are increasingly reducing single-waste plastics.[301] While these changes may benefit the environment a little, a key sector for planners to watch is the built environment – as our construction and demolition sector produces almost a third of all waste in Australia.[302]

Australian cities are expected to be home to 74 per cent of the population by 2066, generating a huge number of emissions and waste from the built environment to keep up.[303] PwC chief economist, Jeremy Thorpe calls for an alternative economy model stating that: "The linear economy is becoming increasingly unsustainable and there is a need for an alternative economy model."[304]

Enter the circular economy model.

Circular economy practices can be applied to all waste-generating sectors, extending the usable life of products and their value, creating new jobs and supporting economic growth.[305] In fact, if Australia was to transition to a circular economy, we could generate up to $1.9 trillion in economic benefits over the next 20 years, while saving 165 million tonnes of CO2 per year at the same time.[306]

The next decade and beyond could see unprecedented levels of investment in city-shaping projects as indicated by the Australian Government's $110 billion worth of investments in transport infrastructure.[307] This presents an opportunity for Australia to implement circular economy principles and strategies.

While Australia-wide policy is relatively inconsistent, the Australian Government has set ambitious targets to reduce waste, such as the 80 per cent average resource recovery rate by 2030.[308] [309] Movements toward this are supported by other

government investments such as the Recycling Modernisation Fund and initiatives carried out by non-government organisations such as the Ending Plastic Waste Mission conducted by CSIRO.[310]

There's also an indication that investors see climate change as a severe risk to their portfolios and returns.[311] The trillions of dollars under the management of institutional investors has the potential to capitalise on climate solutions. Private investment in climate mitigation could be important in delivering these economic changes.

While Australia's low economic complexity may hinder the development of a circular economy due to the large shares of primary industries and service sectors in the economy, we have significant potential for circularity in our mining, construction, manufacturing, agriculture and resource industries which is supported by our domestic production (workforce skills, strong innovation centres, abundant critical minerals and resources, renewable energy and favourable policies and investment institutions) and global trade (proximity to Asian manufacturing centres and markets).[312] Moving the food, transport and built environment sectors to a circular economy could create a massive GDP benefit to the Australian economy.[313]

In the built environment, circular opportunities include:

- Water use efficiency and recycling.
- The electrification of transport.
- Compact dwellings.
- 3D printing of buildings.
- Energy efficient buildings.
- Selective refurbishment of existing buildings.
- Alternative, renewable energy sources.
- High value recycling and reuse construction modules.[314 315]

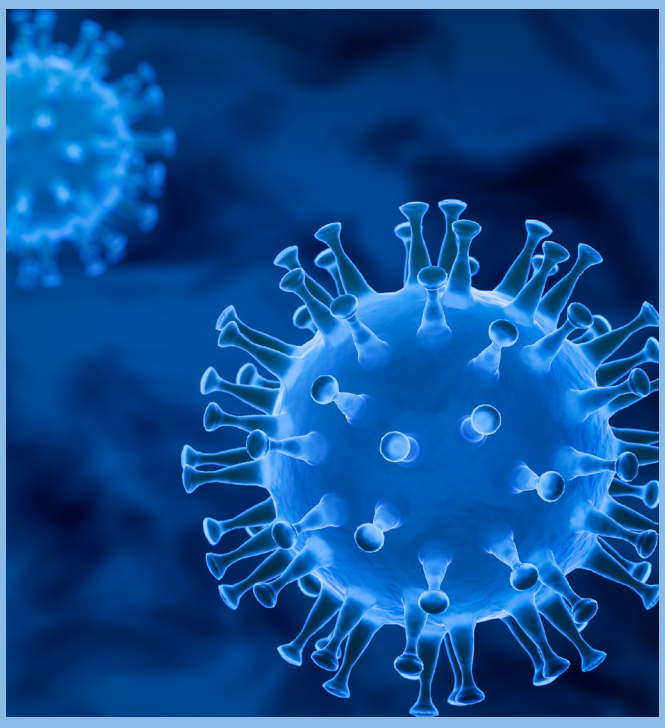
There are many innovative examples found in other sectors, such as electronics, plastics and textiles, if we all work together to close the loop. This is an area to observe and adapt to moving forward.

Future pandemics

The potential recurrence of pandemics poses significant implications for urban planning, particularly in how cities prepare for and respond to climate-related challenges. As pandemics evolve, they introduce new complexities, such as disruptions to transport systems, shifts in workplace dynamics and changes to energy consumption patterns. These dynamics can catalyse a re-evaluation of urban design and lead to a stronger integration of green infrastructure and sustainable building practices to enhance urban resilience and public health.

Pandemics drive up change in urban mobility, with more people opting for individual transport or remote work. This shift can lead to reduced emissions and energy use, contributing to climate mitigation efforts. The experience of pandemics can also amplify the role of green spaces in our cities, underlining their importance in creating ecological stability and public health resilience.

As we witnessed during the COVID-19 pandemic, future unknown pandemics may present an opportunity to recognise the importance of access to quality green spaces and sustainable practices in urban planning, promoting our broader resilience against climate change-related risks. By incorporating nature-based solutions and adaptive design in urban environments, planners can help mitigate the effects of climate change while creating benefits for public health and wellbeing.[316]



THE GLOBAL MELTING POT

While Australia is geographically remote, we are not isolated from the rest of the world. External forces shape how we manage and respond to change – and these are ever shifting and difficult to foresee. Geopolitics and international conflicts can fundamentally change global relations and how we engage with other countries and markets. Conflicts can also lead to disruptions in our supply chains and highlight the vulnerability of these volatile systems.

“We’re seeing this really interesting thing throughout the world, that is a combination of climate change, the refugee crisis - driving people out of countries looking for alternative places.”

Dyan Currie AM RPIA (Life Fellow)
Chief Planner, Brisbane City Council

Global unrest and international politics

Global unrest and associated issues are an unpredictable and constant threat. Given their unpredictable nature, global unrest is a trend which to difficult to plan for. Global unrest can alter migration patterns, force increased security measures, tighten economic markets and ultimately result in changes around how we plan and mitigate risk in our cities.

Threats to national security and other uncontrollable risks can have immediate impacts on our cities and public spaces. We've seen in recent years how public spaces can be altered to enhance a sense of security following a spate of international terrorism in major cities. This led to the installation of physical interventions to secure public spaces from vehicle ramming attacks.[317]

Further, policy changes are often required to enhance protections such as updates to Crime Prevention Through Environmental Design (CPTED) and a bolstering of architectural and engineering requirements to new buildings. These all help to mitigate potential future risks posed by unknown factors such as global unrest.

Self containment and supply chain control

Global unrest and political conflicts can highlight the volatile nature of an economy reliant on external parties and global supply chain. This is particularly the case with property investment, imports and the energy market. With ongoing conflicts around the world, we've seen how supply chains can be significantly disrupted.

The war in Ukraine triggered disruption in the global food supply chain after the impact of the COVID-19 pandemic.[318] This humanitarian disaster created not only a severe refugee crisis in Europe but impacted global food supply chains and increased the cost of food in countries around the world.

Such disruptive forces have been prominent in the last five years with the COVID-19 pandemic disrupting the supply of goods and materials across Australia, leading to years-long impact. Such events bring to light the fragility of distribution networks and emphasise the need for coordinated, timely and flexible government responses to crisis management and recovery.[319]

While our governments have some way to go before they introduce major policies around building national resilience to these unprecedented events, planners can observe the development and rollout of interventions to build our national supply chain.

Building our national supply chain will impact future planning for development and infrastructure, as well as alter future job growth in certain identified areas.

> **I think there's something that sits at the scale of climate change, and it's the emerging pressures and conflict in the world."**
>
> Dyan Currie AM RPIA (Life Fellow)
> Chief Planner, Brisbane City Council

CONCLUSION

The future of planning is shaped by the interplay between diverse trends that require innovative and adaptive solutions. Throughout this report, we've highlighted the key trends impacting the profession, isolated key drivers of change and drawn attention to the role planners play in shaping our cities, today and tomorrow.

The purpose of this report is to assist planners in understanding and navigating complex changes, many of which lie outside the day-to-day work we undertake. We've focused on opportunities that are associated with trends or mitigate the risks. Where possible, we have presented solutions and thoughts around the impact of certain trends.

Through researching, surveying and workshopping with the planning profession, we identified almost 200 trends that are or will impact our profession. This in itself, shows the myriad of factors and future trends that planners across the profession need to navigate. As a result, not all trends will be relevant for all planners, but many will have far reaching impacts.

Trends are forever evolving and we cannot be fully certain of the future and what it might hold. Through research and understanding the trajectory of trends, we've highlighted the need for urgency to act on key trends impacting our profession today, prepare for trends that are emerging and monitor and observe the trends that are less predictable.

The evolving nature of trends highlights that some may undoubtedly accelerate while others may slow down or fade away. Where possible, we have called planners to action or highlighted the need for awareness around trends on the horizon. Ultimately, trends are unpredictable. A slight change can alter the course of any number, but by thinking about the future, we can be ready for change.

By being proactive, adaptive and future thinking we can lean into future trends to the advantage of the whole planning profession. As we look ahead, it's clear that the future of planning will be characterised by innovation and a commitment to shaping cities that are thriving and sustainable.

PIA and Urbis will continue to investigate the impact future trends will have on the profession and build on sharing this knowledge to equip its members with the tools to tackle to future of planning.

Foresight isn't predicting the future. It's about trying to understand what it could be. ”

Nicholas Kamols PIA (Assoc.)
Co-founder, PowerWells

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