Australian Institute of Architects

Sustainable Solutions for Smart Cities in Australia

Board Chair, Genevieve Overell AM

**Smart Cities in Australia Webinar
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**German-Australian Chamber of Industry and Commerce and
German-Asia Pacific Business Association**

Australian Institute of Architects

What is the AIA and what do we stand for?

- The Institute is the peak body for architects in Australia

- 12,500 members in Australia and overseas

- The Institute works to maintain and improve the quality of our built environment by promoting better, responsible and environmentally sustainable design

- Architects play a key role in Australia's $100 billion built environment sector

- The Institute is passionate about addressing Australia's urban challenges and

- We recognise the First Nations people of Australia and celebrate their continuing cultural practices and Connection to Country.

Australian Institute of Architects

About Australia

- A federation since 1901 of 6 States and 2 Territories, Australia has three tiers of government – Federal, State/Territory and Local (537) all with policies, programs, laws and regulations affecting the development of Smart Cities.

- Australia's population is highly urbanised with more than three quarters living in coastal cities and towns. Whilst more than 10 million Australians live in the two largest cities of Melbourne and Sydney and most live across the country in smaller cities and towns, much of Australia is sparcely-populated.

- Regional Australia produces a large proportion of Australia's exports, however, almost 80 per cent of our economic activity occurs in our cities.

- Australia is experiencing a period of high public sector investment in infrastructure paired with private sector commitment to fostering innovation in products and service delivery.

- Our Federal Government's current investment pipeline of $15.2 billion in infrastructure, road and rail, in addition to individual State and Territory contributions, together create significant opportunities for professional services, manufacturers and suppliers.

- Much of this pipeline is offered through Australia's Smart Cities programs.

- Protection of Aboriginal cultural heritage is now being required by Australian Governments through planning and heritage legislation – design professionals play a significant role.

What are *Smart Cities*?

- Australia's Smart Cities aim to foster collaboration and connectivity

- Smart cities provide sustainable built forms that deliver:

  - green open spaces and clean air

  - accessibility to services

  - sustainable uses of resources

  - increased social cohesion

  - enhanced public transport

  - increased walkability/micro-mobility

  - thriving economic opportunities

  - a better-connected communities

Australia's Smart Cities Plan

Three Pillars:

- Smart investment
- Smart policy
- Smart Technology

Plan encompasses capital and regional cities

Image:
Project name | Practice | Photographer

Image:
Moreton Manor | CO-AP Design | Photo:
Ross Honeysett

Opportunities for industry to lead

- Australia's economic transition - from resources and agriculture to a knowledge, advanced manufacturing and services-based economy
- Education and jobs – address the disconnect between higher education and demand for new skills in digital economy/ IT/Cyber/Robotics/AI
- Housing and Transport – Need for affordable and energy efficient housing and sustainable transport options

Gaps in our policy settings:

- Embedding quality design
- Improving energy efficiency
- Increasing adaptation and resilience to climate change

Economic transition

- Australia is poised to leverage its access to renewable energy, to spur innovation and investment in next-generation technology to solve the current deficit in battery-storage capability and dispatchable energy – we have the necessary minerals!
- Progress our development of alternative energy sources eg hydrogen-based energy generation to replace fossil fuels
- Pivot to value-add to our exports, to on-shore high-tech manufacturing, to train/re-train/upskill workforce and optimise our advantages:
  - Proximity to Asia
  - Mature, well-regulated financial sector
  - Educated workforce
  - Leading research institutions

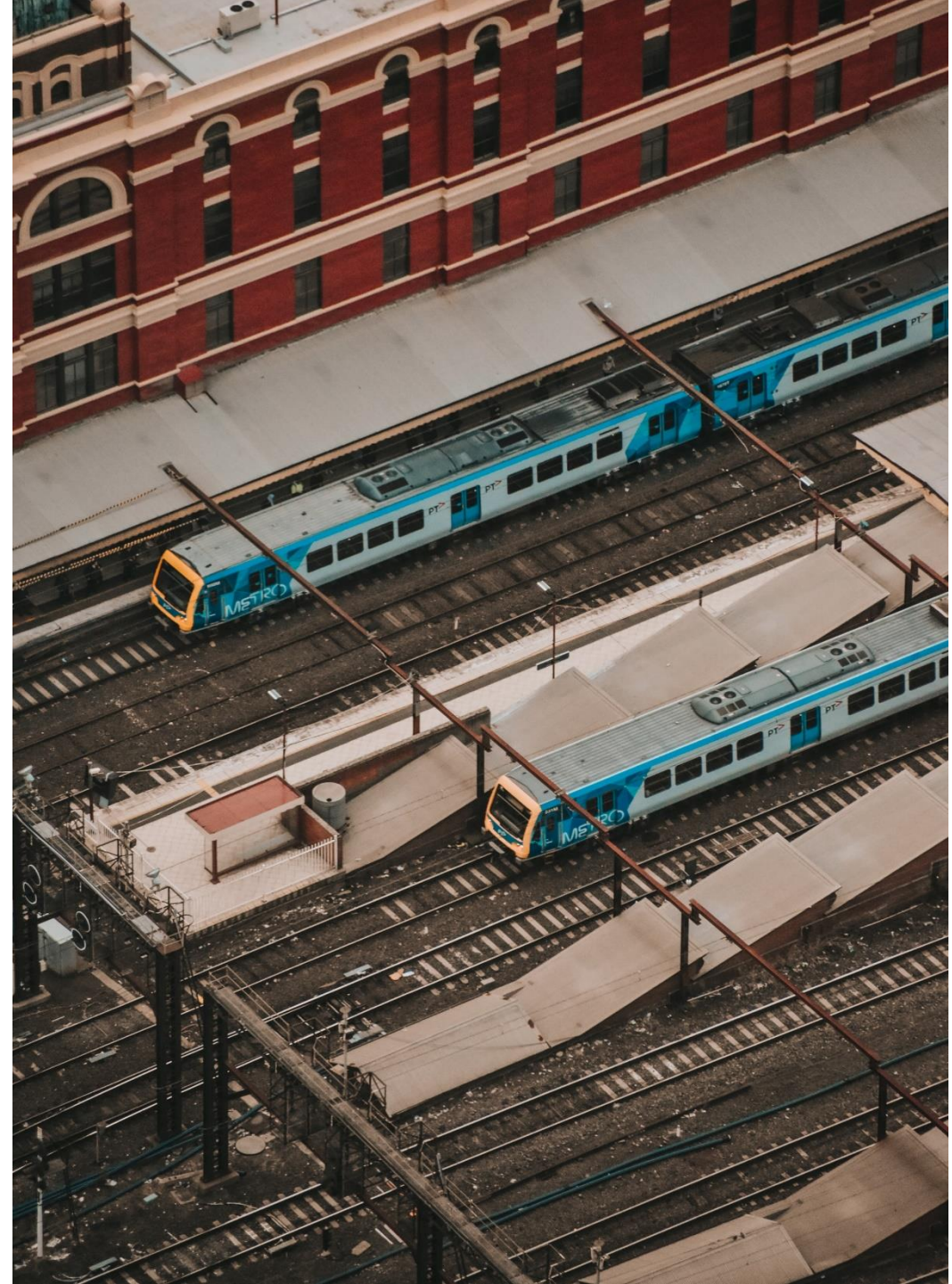## Education and Jobs Challenges

- Australia facing the challenge of a skills shortage that is impeding economic growth

- Opportunities exist to realign education and training to meet the needs of rapidly evolving industries and commerce

- German education and training systems offer an interesting model!

- A workforce skilled to contribute to emerging industries will facilitate the creation of job clusters to foster greater innovation.

Image: Moreton Manor | CO-AP Design | Photo: Ross Honeysett

Housing and Transport

Opportunities for improvement :

- Create affordable housing options through advanced manufacturing techniques
- Reduce the costs of urban congestion - estimated to cost over $16.5 billion every year
- Create 30-minute cities
- Improve movement of freight
- Manage urban development pressures around ports, airports and rail
- Improve public transport networks

Policy gap – embedding design quality into smart cities

- Use architecture and design skills early to test possibilities and to produce social and equitable cities
- Make design quality a mandatory requirement for all project funding for public buildings.
- Create meaningful collaboration with First Nations Peoples and embed Indigenous knowledge of country throughout and beyond the lifecycle of a project.
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Image:
Moreton Manor | CO-AP Design | Photo: Ross Honeysett

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Resilient and sustainable communities

There are opportunities to:

- Create buildings that are resistant to extreme climatic events such as heat waves, droughts, floods, storms and bushfires

- Create sustainable cities that optimise water usage, waste management, energy use, green spaces and clean air

- Optimise emission reduction including energy efficiency measures

- Facilitate generation of renewable energy

The Institute endorses a target for the Australian building and construction industry to be decarbonised by 2030.

Responding to extreme weather events

Challenges and opportunities:

- Evaluate all new projects differently

- Upgrade existing buildings for extended use

- Include life-cycle costing, whole life carbon modelling and post occupancy evaluation

- Adopt more regenerative design principles

- Collaborate with engineers, contractors and clients to further reduce construction waste

- Accelerate the shift to low embodied-carbon materials in all work and

- Minimise wasteful use of resources in architecture and urban planning.

Image: Moreton Manor | CO-AP Design | Photo: Ross Honeysett
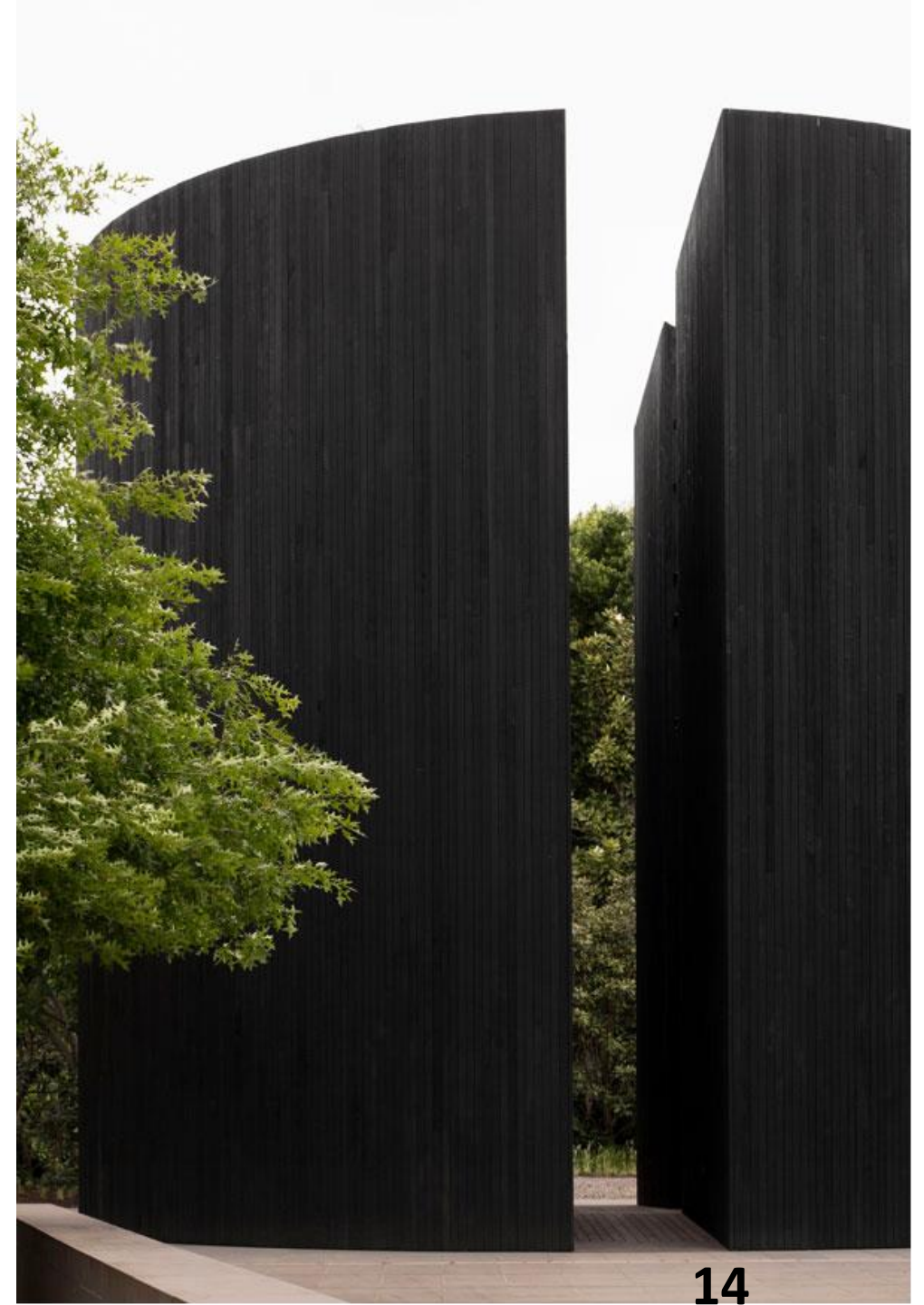
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Opportunities in energy efficiency

Australian architects are advocating for :

- Strong mandatory minimum standards for energy performance of buildings and appliances
- Targeted incentives and programs, to encourage the uptake of green plant and equipment; the purchase of green homes and properties
- Energy market reforms, to remove market distortions that undermine the business case for energy efficiency and distributed generation
- Enabling data, information, research and education measures
- A national plan towards 2030 zero-carbon buildings

Recognition of indigenous knowledge

- First Nations-led designs are richer in meaning and narrative

- Spaces are more sustainable in an environmental sense

- Materials chosen are durable and more climate resilient

- Designs become far more relevant to communities and inclusive towards end users

- Projects become more successful economically

- Cultural awareness across the industry improves

- Conflicts are less frequent and

- Projects become inherently unique, as they are based on a localised story and vision of the First Nations people in that area.

2020 Kevin Borland Award for Small Project Architecture | In Absence | Edition Office and Yhonnie Scarce | Victoria | Photographer: Ben Hosking. . Traditional Owners of the land the Wurundjeri Woi-Wurrung People

Smart Cities after Covid-19?

Covid-19 has forced changes to economies, lifestyles, communication, work-practices, shopping, healthcare, personal freedom and consequently, attitudes to urban environments:

- Higher expectations of built form, spaces and amenity
- Demands for greater flexibility in working arrangements
- Increased reliance on technology to connect in lockdown and working from anywhere
- Increased focus on physical and mental health and well-being
- Resistance to commuting to work
- Residential exodus from cities to regional and rural areas
- Greater connection with natural environment

Sustainable solutions for Smart Cities in Australia?

Our plans for achieving Smart Cities depend on collaboration across communities, businesses and governments to strengthen policies, programs and funding criteria that will facilitate sustainable outcomes for the environment, the economy, our First Nations and all Australians.

Our future smart cities will be designed to allow people, their businesses, their environments and their communities to adapt and flourish.