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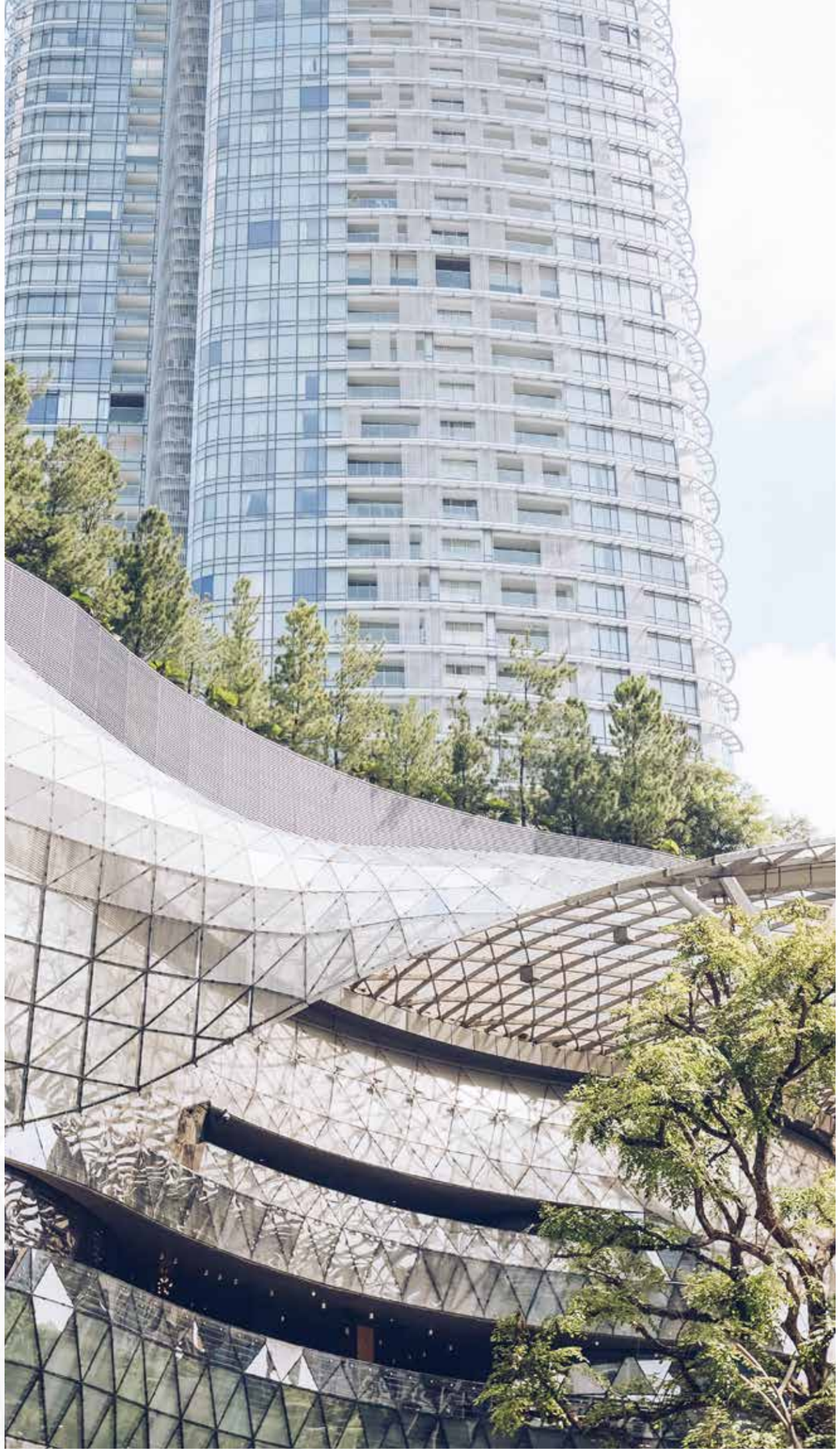

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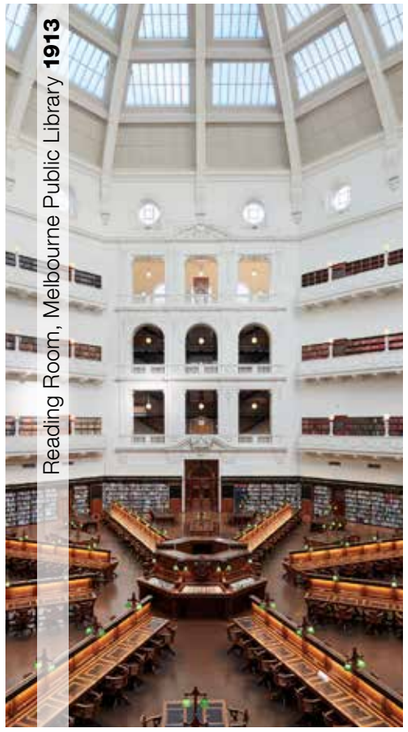
Reading Room, Melbourne Public Library **1913**


Wilson Hall, Melbourne Uni **1956**


School of Mechanical and Manufacturing Engineering, UNSW **2015**


25 King, Brisbane **2018**


Constitution Place, Canberra **2020**


1880 Melbourne International Exhibition Building


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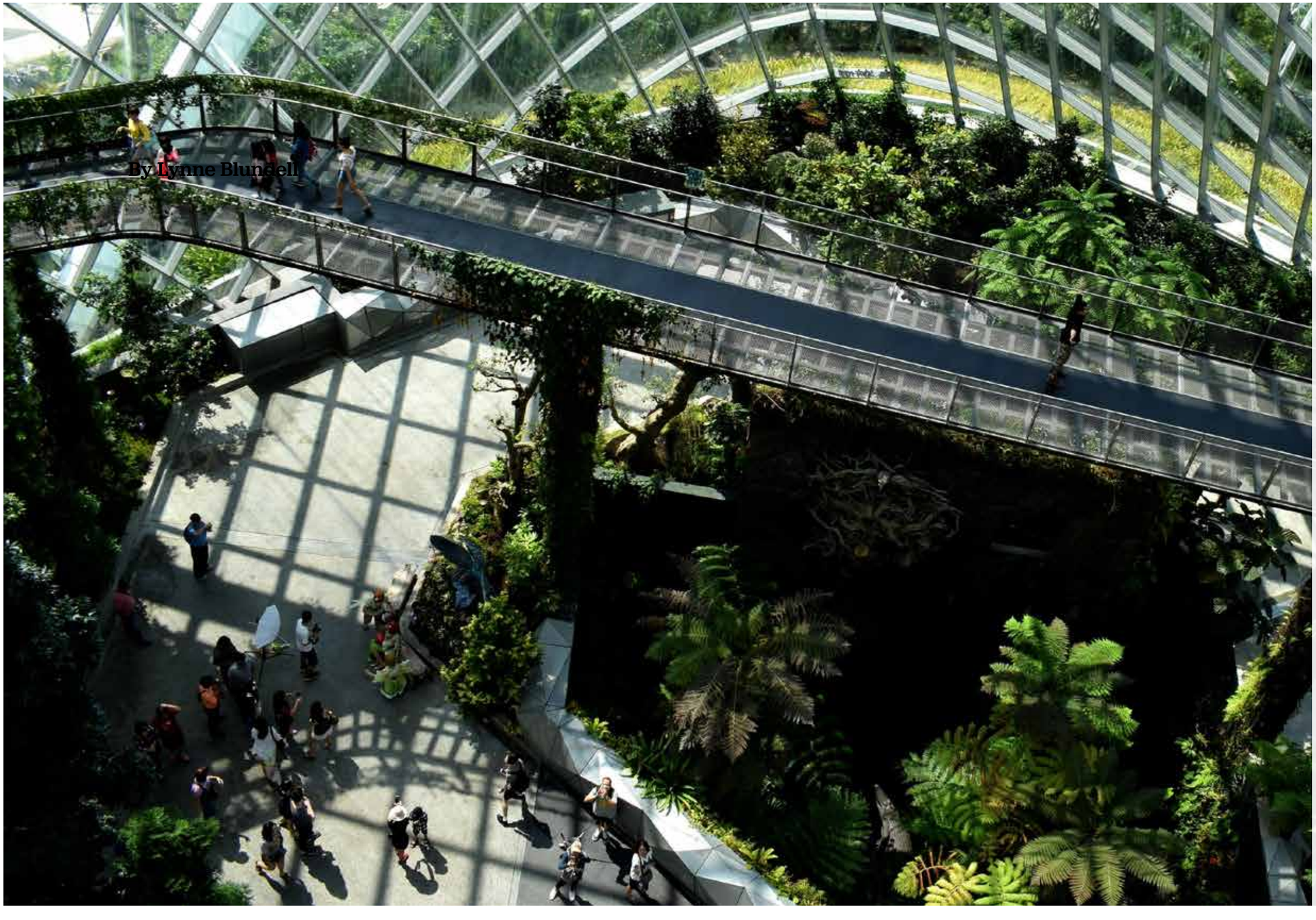
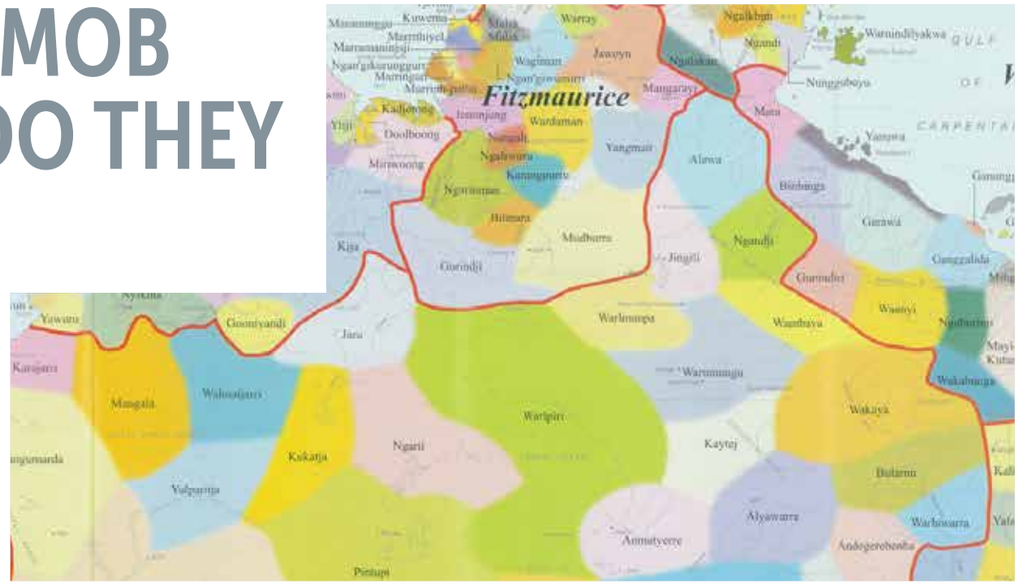


By Lynne Blundell

2018

Tomorrowland 2018 was jam packed with mind-expanding concepts and new ways of thinking about what we want from our cities and our homes. There was no shortage of whizz bang and awe inspiring, from the latest in biomimicry to the future of autonomous vehicles and the technology driving sustainable precincts. But what really made the event sing was the realisation that none of that matters if we don't like where we live and have no connection to place or community. Simple but profound. And so often missing in city design.

WHO'S YOUR MOB AND WHERE DO THEY COME FROM?



Leading Indigenous architect and educator, Jefa Greenaway, set the tone for the day with his inspiring keynote presentation on how Indigenous culture, thinking and connection to Country can infuse city planning and design to create more connected communities and respect for the history of the land they occupy.

"I'm going to take you on a journey of connection to Country and an understanding of the uniqueness of this place which is connected to 67,000 years of history and memory," Greenaway said.

He began with acknowledgement of the Gadigal people of the Eora Nation, the traditional owners of Barangaroo, where Tomorrowland was held, a site that is close to an Indigenous burial ground.

Then he considered how to approach a design project:

"The first question I ask when talking to communities is: 'Who's your mob and where are they from?'"

"There are 300 different language groups in this country [pre-white contact] and what this talks to is the diversity of this island continent and its vast array of voices."

Greenaway's heritage is that of many Indigenous people – a mix of Aboriginal and European ancestors. What isn't common is Indigenous representation in the architecture and design professions. The first Indigenous person to qualify as an architect, Greenaway is now a mentor and role model for Indigenous design practitioners, a role that is sorely needed given there are only five practising Indigenous architects.

Instrumental in establishing the not-for-profit organisation Indigenous Architecture and Design Victoria, Greenaway wants to normalise connection to Indigenous culture in the design professions. He also wants to showcase Indigenous knowledge and change the way cities are designed through imbuing the design process with Indigenous thinking.

When embarking on new urban projects, the first step is to challenge the stereotype that the majority of Indigenous people live in the remote centre. In reality only five per cent do. Greenaway referred to numerous urban projects – Adelaide Contemporary Gallery, the Metro Tunnel Melbourne, Fishermen's Bend Project Melbourne, the transformation of South Bank Boulevard in Melbourne and Queen Victoria Market redevelopment – and the significance of location.

The first Indigenous person to qualify as an architect, Greenaway is now a mentor and role model for Indigenous design practitioners, a role that is sorely needed given there are only five practising Indigenous architects.

"All these projects are built on Aboriginal land. So what does this mean for us when we start to embrace this reality? The challenge is how to view our projects with Aboriginal sensibility and understanding of old systems," said Greenaway.

"In the city of Melbourne there are remnants of Indigenous culture and memory. While we can concrete over our culture, Indigenous stories and narrative still reside in place."

He used two Melbourne projects to illustrate how his firm had done this – the redesign of the Yarra Building in Federation Square to house the Koorie Heritage Trust and the creation of a new student precinct at the University of Melbourne.

In the Yarra Building project Greenaway's task was to imbue the expressions of local Indigenous values and the Trust's legacy into the new place. A key challenge was to accommodate an institution that housed 60,000 artefacts.

"The challenge was how to embed cultural significance in this project, to move beyond clichés and stereotypes to something much more embedded," said Greenaway.

A key reference point was the location of the building next to the Yarra River. Oddly, the building had turned its back to the Birrarung, which is the Wurundjeri name for the Yarra River. Greenaway brought the river back through window apertures that provide glimpses of the river, textiles and materials reminiscent of rivers, and a balcony that provides views of the Birrarung.

Scar Tree, a signifier of Indigenous custodianship of the land where communities only take what they need from a tree and allow it to keep living, is referenced in a massive timber gathering table in the shape of a canoe.

"We know the importance of water. The Yarra River had a waterfall that was dynamited in the 1880s. It was located at the confluence of fresh and salt water but was disturbed by colonisation. The places we gravitate to now were always important places. The MCG (Melbourne Cricket Ground) was a significant corroboree gathering ground for Indigenous people and it is still an important gathering place for people to celebrate sport," said Greenaway.

In the University of Melbourne project Greenaway referenced the original features of the land. Large remnant river redgums tell the story of the watercourse that once traversed the campus, and a billabong that was at the centre.

Jefa Greenaway

Ideally we facilitate opportunities where it is Indigenous-led. We start to emancipate and liberate the opportunities for Indigenous people to become empowered though that process.

"The echo of Country informs the way we designed that place. Over time the University has started to embrace its Indigenous connections and an understanding of the campus does start to tell a story of cultural continuity. What it also acknowledges is some difficult history and the fact that the University has been complicit in the colonial project of its own past.

"We wanted to amplify and reveal that history. How we started to do that was to look at cultural narrative. Importantly this project is aligned as being a signature project for the new Reconciliation Action Plan – RAP3."

Greenaway and his team aimed to empower and celebrate a connection to Indigenous culture and to do this developed a series of pillars to create a design framework. These were Connection to Country, Connection to People, Art and Artefact, and Living History and Memory.

Interestingly, said Greenaway, the location of the waterfall that was once in the Yarra is on campus. While it is now covered over, the eel migration that has always taken place in the river continues and traverses the university through the network of pipes.

"So this talks to cultural resilience when we look at eel migration and patterns of how eels transmogrify from salt water to fresh water and back again. What it also does is connect through Country. Watercourses are not bound by nation boundaries and this talks to a global connection. Eel migration traverses through to New Zealand, to the west coast of South America, up through Hawaii, across Asia and back to Australia. So again this talks to a global sense of resilience and change.

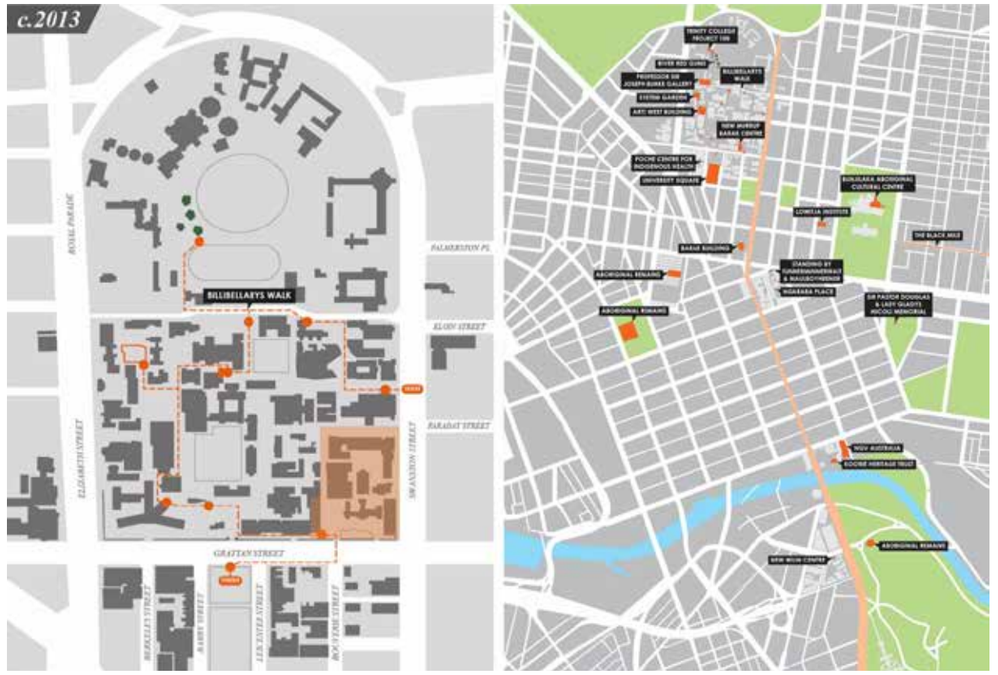
"And through this intervention – of nine new buildings and urban design that stitches all these buildings together – is a desire to infuse it with Indigenous design thinking as part of the DNA of the project".

Doing this, says Greenaway, activates spaces to facilitate ceremony and starts to normalise, as part of the exploration of the university, the connection to the oldest human culture of the world. It also encourages opportunities for cultural exchange and promotes a deep connection to place.

The importance of knowledge exchange embedded in Indigenous culture can be brought to design projects. As part of this process, architects and designers should not only acknowledge cultural considerations but also understand that when engaging with Indigenous culture they are relying on the custodians of that knowledge.

"Whether an architect, a builder or a planner, we need to park our ego at the door," said Greenaway.

"Ideally we facilitate opportunities where it is Indigenous-led. We start to emancipate and liberate the opportunities for Indigenous people to become empowered though that process." ■



In the city of Melbourne there are remnants of Indigenous culture and memory. While we can concrete over our culture, Indigenous stories and narrative still reside in place – Jefa Greenaway

BIOMIMICRY

the rising voice of nature in buildings and infrastructure

Next up was the brilliant James Murray-Parkes, who leads Brookfield Scientific Solutions, owned by Brookfield Asset Management.

Murray-Parkes is known for his innovative approach to building design, coming up with ideas sometimes inspired by nature and always driven by algorithms and an unfettered mind. The focus is to create solutions that help slash resource consumption and cost in the built environment.

Take the system for constructing tall buildings inspired by an orangutan's hand. It allows what Murray-Parkes calls a self-climbing building, which eliminates the need for cranes during the construction process. The system will be used in the 31-storey project at 77 Market Street in Sydney, allowing significant cost saving due to the elimination of temporary works.

And then there's the roof of the Perth Stadium, which mimicked a motorcycle swing arm previously designed by Murray-Parkes. "I took the same geometry and turned it upside down and used the exact same coordinates and it worked perfectly," he told the Tomorrowland audience.

The redesign of the 40m roof trusses in the stadium was done in four weeks, with efficient single pin connections designed to eliminate potential issues with alignment and tolerances. Redundant material was removed and alternative systems created to reduce overall mass. The result? A $29 million saving.

Murray-Parkes' favourite thing it seems, is his computer, which he has named Little Al. He claims it is the first prediction computer and he uses it to do things like apply an algorithm based on how wind moves through trees. By allowing data to flow through a computer faster he can then mathematically describe how energy prefers to move through things such as built spaces.

In much the same way, he created an algorithm to mimic the elliptical movement of a blade of grass to remove flexion as well as excess materials from buildings. This approach was used to inform the design of Australia 108, the 100-storey residential tower currently being built by Multiplex in Melbourne's Southbank.

"We think of blades of grass as single pieces but when you put them under the microscope they have joins all the way down like bamboo. So we thought why don't we put a whole lot of joins in the middle of Australia 108? We thought we'd start with one hinge connection in the middle," said Murray-Parkes.

The concept was taken further with a hinge connection every ten floors. This pulled 7/8 of the deflection out.

"That design wasn't adopted but elements of it were and it helped us pull a whole lot of material out of the building," said Murray-Parkes.

In Monmouth, New Jersey, Murray-Parkes came up with a design for a sustainable outdoor heating solution that looks like a crop of giant tulips. In a place that can be -35 degrees outside he's invented a way for people to shop outdoors.

The 'tulips' have an open spherical shape at the top, lined with solar collectors that melt ice and snow, and funnel water down a chain into a reservoir below where it's heated by elements powered by the sun, and then circulated back up pipes.

In one of his latest projects Murray-Parkes hasn't so much used mimicry as repurposed a material. The project, Borehouse in New Zealand, involves the construction of 7000 three-storey low cost apartments. Murray-Parkes came up with the idea of using guardrail, usually found on freeways, as the material for columns.

"Guardrail takes big impacts and has good buckling resistivity. It makes really good columns and only costs six dollars a metre. To glue the building together we used almond shell epoxy. We didn't want to create a big capex problem for New Zealand and we wanted to make it easy and cheap to build." ■

Biomimicry:
The Q&A panel

Following these two inspiring presentations a panel of experts answered questions from the audience (and sometimes from one another). The panel included:

Moderator:

Panel:

Ben Peacock

The Republic of Everyone

Cheryl Desha

Associate Professor and head of civil engineering, Griffith University.

Samantha Hayes

Managing consultant, Bioneering Australia.

Jefa Greenaway

Director, Greenaway Architects and lecturer at University of Melbourne.

James Murray-Parkes

Brookfield Scientific Solutions Group and Professor of Practice at Monash University Department of Civil Engineering.

The following are edited versions of the questions and answers.

Q. Samantha Hayes to James Murray Parkes:

Are you able to exceed building codes?

James: We don't use codes. We have to proof test. Building codes around the world are mostly ignored. Designers look to standards rather than codes. Building codes are law so you can't ignore them completely but if you adopt them at the beginning of the design you don't innovate and you don't make change. You revert. Standards are not laws and we ignore them completely in our office apart from the ones we devise ourselves for our handbook. We believe ours are better than any other standards and we build all our buildings to those. I don't think there's any place at the beginning of the design phase for codes or standards. You just have to use your brain.

Q. Karen Smith, Landcom to Jefa Greenaway:

I was shocked to hear there are only five Indigenous architects practising in Australia. Why do you think that is and what are the barriers that need to be removed?

Jefa: The key thing is role models. You can't aspire to something that you don't see. What tends to happen is Indigenous sports people, or artists, or actors are showcased, but Indigenous design practitioners aren't. The key is to shift the dialogue to say Indigenous people compete in many spaces – they are professionals, they work in all realms. The other thing is that the reality is the built environment has been a tool for colonisation.

There may well be some residual thinking that says "maybe this is something we shouldn't engage in". But the other thing is, some important professions have been privileged. So facilitating agency by working in the law or

Cameron Dymond

This entire continent was groomed by Indigenous people to facilitate living. It was carefully calibrated. Not much here that was virgin landscape, that hadn't been touched – Jefa Greenaway

health has been seen as an acute need to bring about change in that space. But I would argue that in many respects the built environment professions have a real tangible contribution in how we live because they fuse science, history, technology and creativity. It's really important to build that scaffolding and support.

A case in point – I started this role in the university as a knowledge broker and in curriculum development last year. At that time there were eight Indigenous students in the faculty across all disciplines. Now there are 16.

Q. Sam Cooper, Cred Consulting:

What is your favourite project, where the kinds of things you study or research have had really good outcomes?

James: I don't know. In the last five years I've worked on 28 projects. I'd like to think all have had better social outcomes. Bringing better efficiency to any structure, whether a mathematical structure or an inverted pendulum in a building, always has better social outcomes because it's efficient. I think the words we should always look for when working on a design are "let's bring efficiency". In the New Zealand project, Borehouse, we use triangles – it's hard to buckle a triangle. I think taking a guardrail from a freeway and putting it into housing for people who can't afford housing is a good social outcome.

Cheryl: Walking through a building doing an audit in Queensland and looking at airconditioning efficiency, we were hearing from occupants of the building that they were getting emissions from the carpark through the lift shaft. This happened because they had turned the airconditioning down to get better performance in the building and it was creating a vacuum. Whenever the lift came up, it was dragging up pollution from the carpark. In the effort to create efficiency, by not understanding the whole system they created a health hazard.

Samantha: There was an interesting project in the US with Interface called Factory to Forest. In it, they tried to take the system level biomimicry approach and ask the question: "What would it look like if we designed cities that functioned like an ecosystem?" You look at a particular site and quantify the ecosystem services that would have been provided on that site and set those as design parameters or design objectives. Instead of reducing energy use by five per cent from business as usual we want to generate energy as nature would have here.

Karen Smith

The biggest benefit they found, or the biggest business driver from taking that approach, was the employee benefit. And if we could achieve that sort of vision in urban design, the social benefits would be pretty spectacular.

Q. Cameron Dymond, Arup:

There's a lot of talk about mimicry. Mimicking the human brain is something we might see in the future. So with artificial intelligence where do you see that going and how could it possibly benefit the built environment?

James: We're not going into artificial intelligence, we've been into it for a long time because as a physicist when you're looking for the elusive particle or whatever it is you're looking for, you can't do it with your own mind. You don't have the computing power in your own mind to do it – you have to use artificial intelligence to help you. The key for me, it's all a by-product really, because Gates' and Jobs' software doesn't think like me so I found it very difficult to use their software to help me do what I want to do. I have to design software that works with my brain. Our suite of software at Brookfield, called Inner Tandem, is wired to the creator and is a by-product of the creator. I don't think the generic software being built is really AI – it's just quantifiable maths. True AI is an imitation of your mind and to create it you have to be at one with it, you have to really be living inside it. That's why we employ neuroscientists because our latest computer, called Alan after Alan Turing, thinks for itself and is out of control. We can't control how it is learning because it's a living thing now. Where it's going? Buggered if I know – it's just an organic thing.We should go on a journey, not pre-empt things. That's why the planet's in such a bad way. Like our Indigenous friends we should go on journeys.

Jefa: AI is all very well. But what people are really crying out for is meaningful ways to connect. A lot of the work I do in this Indigenous realm of place-making is amplifying ways in which people can engage and connect. That's not to say that Indigenous thinking doesn't also align with technology – they're not mutually exclusive, they can definitely co-exist, but what people really engage with is stories.

Q. Caroline Pidcock, Pidcock Architects

I'm hearing the amazing intelligence that is being applied to things but we need to not apply it in a way that disconnects us from place. We should be learning from nature and applying it in a different way so we're not looking for a 10 per cent energy saving just to make our buildings less bad but concentrating on creating places that are regenerative. What are the barriers, Jefa, to doing that?

Jefa: One of the challenges is shifting beyond this idea of the commodification of culture. That we can somehow Hoover up connections to Indigenous culture and appropriate that and spit it out as a product or an appliqué. This entire continent was groomed by Indigenous people to facilitate living. It was carefully calibrated. Not much here that was virgin landscape, that hadn't been touched. That's the reality. Western science is catching up to validate this.

You don't survive in this hostile continent for millennia without that ability to adapt, and that resilience is part of our thinking. So here is this level of sophistication and intelligence that can be drawn on through this deep knowledge and we can start to collaborate with each other.

An example is in southern Victoria down Portland way. There was a volcanic eruption there about seven thousand years ago and Indigenous people harvested stones and created a sophisticated aquaculture system to harvest yields and facilitate construction of permanent settlements, estimated to be between three hundred and a thousand people. This predates the Pyramids and it's on our doorstep and going for World Heritage listing but people don't know about it.

What it demonstrates is this intelligence to understand a place. Bushfires are now revealing this remnant community. It was a really carefully orchestrated community – the structures were turning their back on the wind, it was drawing on solar gain.

Q. William Miller, Bates Smart to Jefa:

Do you think as a harbour city we are doing enough with our waterways?

Jefa: One of the big shifts in Indigenous communities is understanding of cultural rights around water. In Victoria, Rupert Bird, who created Indigenous Architecture and Design Victoria with me, is now Co-Commissioner of Victorian Waterhole, and that's starting to creating an Indigenous perspective on how we manage our water resources. How do we protect our waterways? How do we understand that one of the most precious resources we have is water? How do we understand the role of waterways in our cities and how we can protect it? This is more and more of an issue. I was involved in a panel discussion with Victorian Water where they're doing a strategic plan of the Yarra, of the Birrarong. We're starting to see that thinking - everything is connected. ■

Are we there yet? From AV to AI and everything in between

Brian Haratsis

Brian Haratsis, executive chairman of MacroPlan Dimasi explored the impact of new technologies on cities. While these impacts may not yet be immediately obvious, said Haratsis, they are well and truly upon us.

An economist and future strategist, Haratsis is an advisor to governments and major corporates with a particular focus on economic forecasting as it relates to private sector property involvement, understanding communities, tourism and social trends.

When he started on his project to explore what happens when global technologies collide in cities, he didn't observe that much. Cities didn't seem to be changing much in response to globalisation and technology. That view didn't last long.

"I'm absolutely convinced now that the technology revolution will fundamentally alter the role and function of cities and lifestyles. New infrastructure and new utility types will also fundamentally change the way we interact with cities," said Haratsis.

"There will be new industries, new industry structures and new global value chains. The value chains have changed already – it's just that from an economic point of view the data sets are set up in such a way that it's not instantly observable."

One change that wasn't expected from technology in cities is centralisation.

"Centralisation is occurring from collaboration. "Originally we thought that with technology cities would become more dispersed, with more people working from home for example. This is not what happened," said Haratsis.

"Actually, major technology companies are requiring much larger pools of labour. Atlassian for example must locate near rail, near the centre of the city or at Redfern. They need to trade off the labour force of Sydney to get the labour force they require and specialisation they need."

This trend globally for centralisation of tradeable services is problematic. It drives up property prices in the inner city as smart creatives who work in such industries move to where the work is. Those who work in lower paid non-tradeable services such as retail and warehousing are pushed to the outskirts where housing is more affordable."

"Wealth concentration is a problem in Australian cities," said Haratsis.

And when it comes to autonomous vehicles we need to think about what they will mean in cities.

"Right now we're letting the technology make the decisions. With Facebook you have to opt in but with autonomous vehicles once you get in you're controlled by it. It can get you to buy things and that is a game changer. Cities

Autonomous vehicles are totally private-sector driven and state and federal governments have no idea about the implications of this kind of technology. Complex mobility issues arise.

can start to control not just how you move around but decisions you make. We have to make a conscious decision about how happy we are about that," said Haratsis.

"Autonomous vehicles are totally private-sector driven and state and federal governments have no idea about the implications of this kind of technology. Complex mobility issues arise."

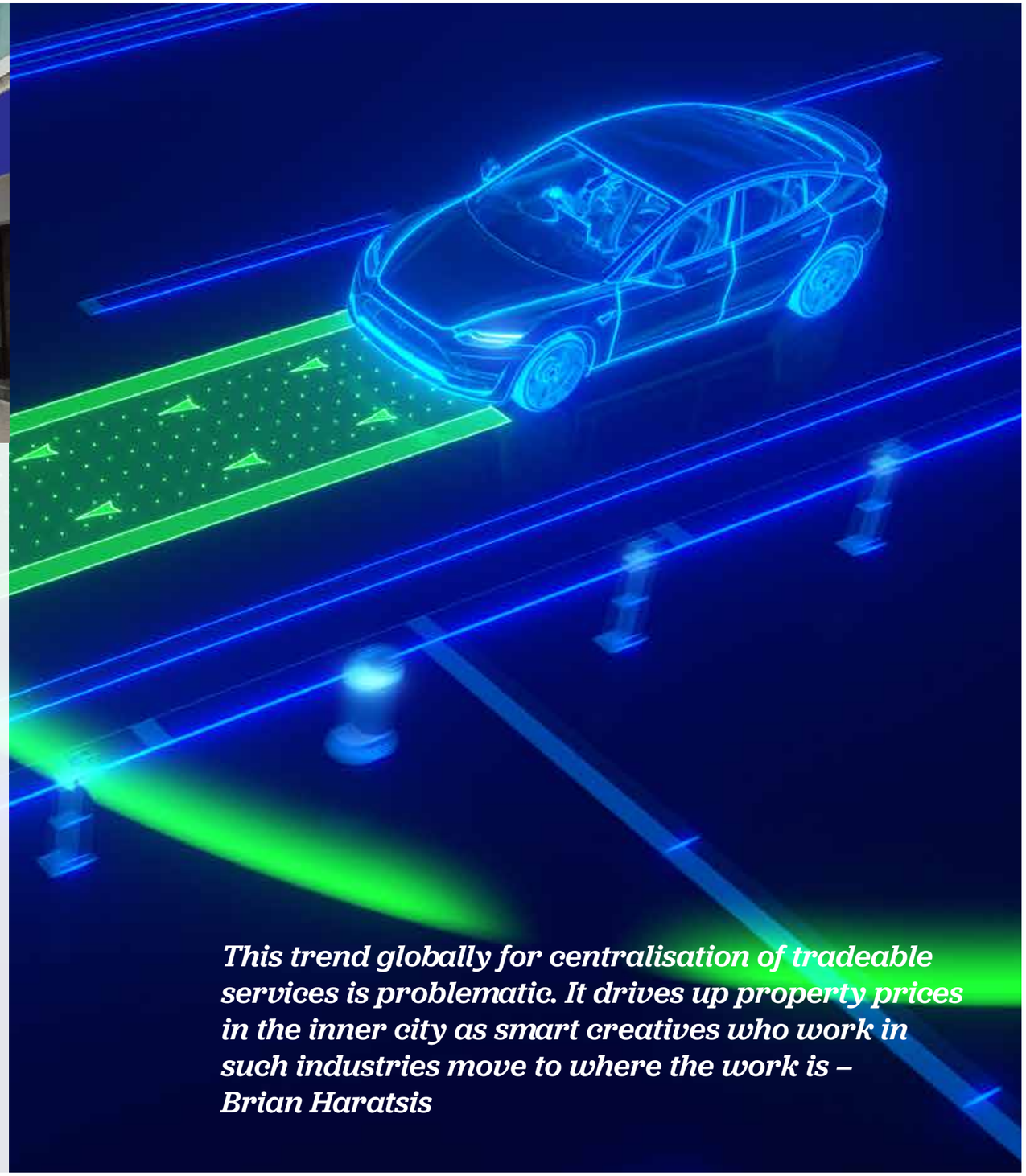
Uber increased mobility dramatically when it arrived in Sydney with a 45 per cent increase in point-to-point travel. Haratsis maintains we don't currently move the way we want to because we've been restricted by what is available.

"There's a latent demand for all types of movement patterns. We just haven't thought of them yet. The system has forced us to do things a certain way.

Inefficiency is always associated with lack of mobility in geographic areas of the city. We need to achieve equal mobility rather than reduce congestion. We can't fix congestion – population is increasing and there's not enough money to fix it."

Freight movement is another area of massive change, with drones on the verge of interrupting current systems. A medical drone is now fully approved for use in the ACT to carry up to 4kg.

And this is true across all types of industry, said Haratsis, with technology poised to change the labour force, transform industries, and create different types of economies. ■



This trend globally for centralisation of tradeable services is problematic. It drives up property prices in the inner city as smart creatives who work in such industries move to where the work is – Brian Haratsis

From AV to AI:
The Q&A panel

Moderator:

Panel:

Alex Harrington

Chief operating officer, Warren Centre

Brian Haratsis

Executive chairman, MacroPlan Dimasi

Amy Child

Associate, transport and urban planner, Arup

David Wilson

Principal transit network planner, Transport NSW

Q. Alex Harrington:

David, where are we at with connected and autonomous vehicles and how practical is this technology in our lives?

David: There are a lot of contested opinions about the introduction of connected and autonomous vehicles, particularly around claims of 90 to 95 per cent reduction in crashes and accidents. Driver error in cars is not as much as 90 to 95 per cent. A lot of the problem is to do with bad roads, other cars and confusing signage. A trial over the past three years in California has found that collisions keep going up with driver-assisted automatic cars.

To give some perspective here are some statistics: 1200 people per year are slaughtered on Australian roads: 600 Australians were killed in the Vietnam War over 10 years. There are 35,000 hospitalisations per year at the cost of $250,000 per person due to car accidents. This is the scale of the carnage. If we could improve this by 25 per cent that would be enormous.

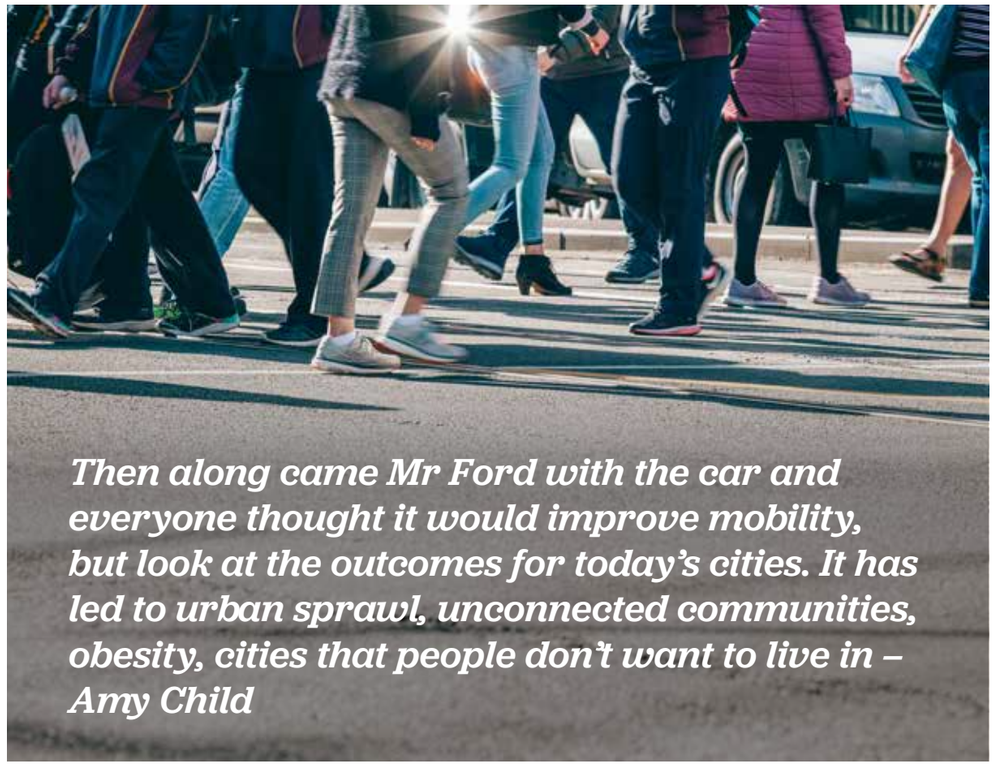
Alex: The aviation industry takes a risk based approach. There's something about humans that we realise we aren't meant to fly. Is this a panacea? Do you think this is a game changer in terms of how we approach planning?

Amy: It's a silly argument. We need to park it – it's an emotive approach to things. One of the benefits of AV is a reduction in accidents but you can't eliminate accidents. Look back to our past. Cities were designed around people and interaction and doing business. Then along came Mr Ford with the car and everyone thought it would improve mobility, but look at the outcomes for today's cities. It has led to urban sprawl, unconnected communities, obesity, cities that people don't want to live in. You can see the places people do want to live – where you can connect with your community, you can walk and get around without your car, where you are connected to place. My worry with AV is they're the Band-Aid over poor planning decisions. The last mile decision. Will we be even further away from good planning decisions? Is it a shiny toy? AV should be a tool, not the answer.

Alex: A question to Brian. The deficit between public transport income in NSW – patronage versus the cost to build – is currently $3.6 billion. When the light rail is completed that goes out to $5.7 billion. What happens to our transport scenario? It's not just about is there a train for me to get on. All of us are connected to this, our superannuation, our investment scenario, our financial systems are very heavily based on what are reliable investment opportunities and infrastructure, and transport is a huge one. So what happens to that $5.7 billion if all of a sudden your public transport options are a fleet of privately owned vehicles that are autonomously driven? There's little direct employment. What does that look like in the future and what are the questions we need to ask about that?

Brian: In Australia we've got such a big public transport deficit built in. This platform technology [AV] will go wild and will result in another freeway building extravaganza because there'll be more private vehicles on the road. You don't get to robotic level straight away, you go to mixed fleet. The trouble with mixed fleet is we don't take the tram anymore. We don't need to – we can go on the freeway and actually work (as we travel). The problem we're confronting here is spending more money on tollways and roads. It is counterintuitive. A diverse mobility objective is what we should be looking for, not the rapid introduction of automatic vehicles. The objective of the federal government is to get automatic vehicles on the road as soon as possible.

Q. Jess Miller, Deputy Lord Mayor City of Sydney: I'm interested in the impact. There's a plethora of data – air pollution data, traffic data and open platforms, that different levels of government can access. What is evident is from the decisions like putting $9.5 billion into toll roads at the moment, something is missing about using that data to make planning decisions. Is it that it's not being communicated adequately or is it just being ignored because of vested interests? Because most data suggests building toll roads doesn't provide high levels of productivity or make



If you live in the middle of nowhere with low density it is not in the AVs' interest to come and pick you up. It will go to the city centre where people have money. This is really worrying – the gentrification of transport – Amy Child

great places to live yet they're being imposed on us. So what's the solution? Why isn't there more outrage?

Brian: I think institutional frameworks in Australia prevent it. Federally, there is little control over the states in the way they operate. The way things happen is through COAG. What federal government wants to do is just change all the rules so automatic vehicles can occur. There is no diverse mobility objective. At federal government level there is no responsibility. Then at state level, it's not so bad in Sydney where we've got Transport for NSW, but if you go to Melbourne you've got Vic Roads and Public Transport Victoria. They don't talk to each other or share data. They have one objective. Vic Roads wants to build as many roads as they can and PTV wants as many people as they can on public transport. Nobody's responsible for what they're building.

Alex: So, David from Transport for NSW, how hard is it to get this data into meaningful decisions?

David: Well the data's there, it's about getting the right balance. We want to see more public transport.

The gentrification of transport

Q. From the audience: I'm interested in the relationship you predict between AVs and inequality in relation to access to transport and where the conversation is at in Australia.

Amy: Infrastructure Victoria recently released documents on the potential impact of AVs. There's a number [of documents] on accessibility and one of the reports paints a great picture where AV – depending on the way it is rolled out, whether privately owned or a fleet opportunity – increased access to critical infrastructure by 30 per cent, which is great.

Then look at the report on traffic modelling showed in the shared fleet model – there are better outcomes because there are fewer vehicles on the road but accessibility reduced from the base case by 11 per cent. That is due to service pricing and availability of AVs. It will reduce people's accessibility particularly in areas of inequality.

If you live in the middle of nowhere with low density it is not in the AVs' interest to come and pick you up. It will go to the city centre where people have money. This is really worrying – the gentrification of transport.

Q. Maire Sheehan, Better Planning Network. Business decisions at the end of the day are based on profitability. Profitability is in tollways not public transport. The whole business model is what's driving it and when you look at Treasury rules it's economic not environmental concerns that are driving decisions.

David: My thinking is influenced by some of the European work I've been involved in, around

income support – like Medicare. I think mobility dictates life chances. First it's health, then it's mobility. The way to go about it is to have a mobility allowance scheme. Each household or each person would get $5000 to spend on tollway or public transport or if they don't spend it they can have money in their hand. What that does is fundamentally alter the decisions consumers can make. They can't make the right decisions at the moment because of history. To me this is about a social movement that demands mobility and demands politicians take notice of the importance of mobility. So fundamental is it and I think it can only happen with consumer and community support.

Q. Margot Black, Charter Hall: Social responsibility of social platforms – they are for-profit businesses and have identified a problem, or found a niche. What is their social responsibility to drivers if Uber decides to change to autonomous vehicles? What happens to the whole sector they've built up? Should they have some sort of governance or ethics associated?

Alex: One of the starkest data points on that is in 2016 Uber had a $150 million loss and their defence to the market was "that was because we had to pay drivers". I was stunned. It was the biggest indicator of where they see the business model going. Uber wants to be our medical service delivery, our food service delivery agency – to the point where you don't step outside the door without Uber. You don't get to be a productive part of the economy without Uber.

Brian: WeWork, the biggest collaborative workplace company in the world, lost $655 million last year. What they're trying to do is get critical mass of professional networks in value chains. For example, they've got IT/ communications, small businesses, and control of big chunks of the market through platform technology so it's about thinking about platforms and thinking about regulatory framework as an anti-trust approach.

Amy: Private business finds holes in the market. We need government to be more agile to have those frameworks in place so when these technologies do happen they will be managed properly.

Alex: Brian, how do we make sure the consequences of these decisions are measured and managed and delivered?

Brian: We need to set clear objectives about what we want to get out of the system, which

we've never done before. I think we should be aiming for equal mobility. If we start from that you've got something you can measure. We can go platform by platform and ask what do we want? Then put institutional frameworks in place to allow that to be delivered.

Q. Jeremy Nagel, Energy Link: What sort of costs are involved in modelling? Electric vehicles are supposed to cost nothing because of no maintenance requirement or energy cost.

Brian: You can save 75 per cent of internal combustion engine costs with electric vehicles. Whether that's how the platform will be priced is another question. There are no cost controls and that is madness. Roads are real estate and real estate charges rent.

Q. Matthew Allen, Bates Smart: We haven't touched on car sharing and the role that might play in the shift towards better transport options. Pros and cons?

David: Car sharing is a more equitable idea than everyone owning their own vehicle. It increases mobility to the community.

Brian: It wouldn't be hard to get every Australian household to reduce car ownership by one on average. Set that as an objective and then ask the question how does car sharing fit into that? I use GoGet. Millennials are changing the attitude to car ownership. Income shifts will be helpful in getting people out of cars and into sharing vehicles.

Amy: Car sharing relies on density.

Brian: If you can get developers to protect native vegetation you can also require them to put a car share scheme into every project. That's just willpower.

Q. Toney Hallahan, freelance planning consultant: We're told AV is going to decrease congestion. How realistic is that? If we don't have to drive ourselves we might drive more.

Amy: If AV is self-drive and people can have as many as they want it will end up with more congestion. A framework and big decisions need to be made to stop that happening. What we do know is once you give people something you can't take it away.

Summing up

David: If you're going to develop AV it needs to be shared or it will be a nightmare. For social equity more rigorous frameworks are needed for balance.

Amy: Look at the assets and see how we could split them, especially where subsidies are so high. What controls are needed to encourage development in the right areas?

Brian: Set up a National Diversity Mobility Authority to set objectives for mobility, which includes walkability as well as public transport. What do we want? Also introduce a mobility allowance rather than road pricing. I find road pricing abhorrent because only wealthy people will be driving on roads. Australians won't cop that. The third thing is to have community conversation about technology and globalisation issues. There's currently no conversation. ■

If you can get developers to protect native vegetation you can also require them to put a car share scheme into every project. That's just willpower – Brian Haratsis

Cbus Property's Randwick Newmarket development.
Image: Bates Smart

LET'S MAKE PRECINCTS & COMMUNITIES SUSTAINABLE

Four views on sustainable precincts from: Haico Schepers, Arup; Terry Leckie, Flow Systems; Lauren Kajewski, Landcom; Matthew Allen, Bates Smart

Haico Schepers, principal, building physics, Arup spoke on Australian National University's (ANU) precinct and alternative energy storage concept.

Haico focused on what smart grids and sustainable precincts can offer. At ANU's precinct a key factor is the cost of energy distribution, with almost 40 per cent of ANU's energy bill tied up in getting energy to the site.

"The idea of using a smart grid, or a micro grid, which is a subset, is that you can mix generation storage and people and can control communication [of how to use energy more efficiently] and save a significant portion of that 40 per cent," Haico said.

There are many additional benefits such as reduced emissions, increased security and reliability, and the important social aspect – educational communications about how to use energy more efficiently.

"When people talk about a smart grid, everybody thinks of a building connected to a meter, connected to a visualisation of your power or energy use. But it can be a lot more than that, especially when you start introducing generation and storage such as batteries and solar and when the systems can communicate with each other.

"If we have a control agent and put in an open source backbone so we can communicate between things, what else can we do? We start to add digital interfaces for people to engage them socially in that process."

Analytics from such a system are also significant, providing a lot of data and information about energy use. The other interesting part of the process was the idea of network sensors.

"Within an electrical network we can have wires being stressed by too much demand and when that happens you can release some of that power. As a result we don't have to dig up part of the campus and put new wires in to avoid that congestion."

"There's a lot of opportunity in this space of smart grids. How do we do it? In this particular case it was about getting all the information together, looking at where the power leaks were and working out how to reduce them in the first place. Fixing the buildings that use too much energy. We've done that by benchmarking them against energy demands," Haico said.

Managing loads more effectively through a combination of smart meters and smart sensing of space was also key. That can involve turning things off when not needed, having smart loads on things like boilers and domestic hot water and working out when it is best to power up things like electric vehicles.

"Beyond demand management we really need to think storage solutions," Haico said.

At ANU a number of storage technologies are being looked at. Thermal and warm ice are two of these; the latter is a new method currently being researched by ANU, which involves combining water and CO_2 to create gas hydrate. The advantage is that it allows storage of latent load at high temperatures, enabling greater efficiency and storage capacity.

Battery storage is also a key element, in particular new research into the use of used batteries in a larger facility.

"We're looking at implementing an area where we use EV storage and essentially give free parking for people with an EV car. But we get to use their battery. That's starting to say what our social contract is with the community."

Another idea being investigated is liquid hydrogen storage. Each hub within the ANU precinct will have a pilot smart grid that implements current technology. Analytics and data generated by the project is likely to provide some surprises, including how to use university spaces more efficiently.

Ultimately, said Haico, the future of smart grids and sustainable precincts is about using and sharing energy more efficiently.

"In the future we could be borrowing energy from a neighbour just like you might borrow a cup of sugar. There's an opportunity to carry this onto large residential towers and share resources more effectively."

When people talk about a smart grid, everybody thinks of a building connected to a meter, connected to a visualisation of your power or energy use. But it can be a lot more than that – Haico Schepers

Terry Leckie

Terry Leckie, Founder and Executive Director, Flow Systems, spoke on opportunities for embedded network at Flow's 2000 hectare site at a former aluminium smelter at Kurri Kurri in the NSW Hunter region. The project is in partnership with Norsk Hydro and a number of other developers.

Terry started with the idea that when embarking on a new development the property sector could look to Indigenous land management for inspiration on how to capture resources that are already there.

"We could turn things on their head," said Terry. "How do we take available resources on that land and make them available for a new community so that it is self-sustaining?"

The 2000 hectare site contains 1000 hectares of conservation land, wetland and a lake, and includes residential and employment lands.

"The problem we've had with sustainability is that developers always think about it as added cost. We've worked on the economics of sustainability and I reckon if you get that right the rest will follow."

So if you go onto the land and look at what's there you can analyse what you could earn from the resources such as rainwater, sunlight, humidity and temperature

By identifying and quantifying resources it is possible to estimate a yield. This could be $15million a year from 1000 hectares with an additional $11million from a solar plant.

"How is this captured and made available to the community? Communities generate resources such as waste. This can be used to generate electricity."

Essential to this is determining what technology should be used to make it available.

"The point is to focus on economics," Terry said. "The model shouldn't leak money. Money is recycled because you create jobs. Someone has to run the generation system, polish the solar panels, do the plumbing and electrical work. Ideally you would say people who live in the community get the jobs. That way you create a cycle for the money."

Apart from the economics there are significant social benefits of such an approach, including employment and community building.

"Once you start on this journey how many other programs could you start? It provides a catalyst," said Terry.

73 per cent of people were happy with the diversity of housing in their community, 88 per cent were happy with their standard of living, and 92 per cent with their physical and mental health – Lauren Kajewski

Lauren Kajewski, sustainability lead for Landcom, spoke on how the government land agency is looking to invest in social equity, inclusion and resilience for the immediate and long-term benefit of the people of NSW.

Kajewski provided some interesting insights into what makes people happy in their community, based on the results of a recent Landcom survey of 500 NSW residents.

The survey revealed that 73 per cent of people were happy with the diversity of housing in their community, 88 per cent were happy with their standard of living, and 92 per cent with their physical and mental health.

This was surprising given that in western Sydney 40 per cent of children and 50 per cent of adults are obese, and 75 per cent do not engage in any physical activity.

"This could be because people may not think they have physical or mental health issues," said Kajewski.

Feeling safe in their homes day or night was considered very important, while safety when walking through the community was not considered as important. People were also happier the more people they knew in their community.

Design of their community was very important to people's satisfaction with quality of life.

"Most of that is attributed to how connected the home and community is to the local environment and to nature," said Kajewski. "The rest is driven by pedestrian and cycle paths and ease of accessibility to transport."

"It is important to design for cool, leafy environments. It is also beneficial for designing to counteract the island heat effect. As designers we have to question how we design for others – how would we like others to design for us? It draws everything back to happiness, quality of life and the experience we have."

"Technology is great but it all comes back to how people experience that place."

Matt Allen, director at Bates Smart, shared insights into new communities he is working on, including at Newmarket Randwick for Cbus Property and the mixed mode community, Ivanhoe, at Macquarie Park.

He put forward two questions:

- How do we design large-scale urban infill precincts not only as a product of time and place but that also feel like a genuine piece of the city?
- How can we use the NSW government's focus on affordability to improve social infrastructure in new residential communities?

The two Sydney projects Allen presented approached these questions very differently. Newmarket in Randwick involved the creation of 650 dwellings supported by the adaptive re-use of the historic Newmarket House, large existing horse stables and a grandstand. Ivanhoe involved creating a mixed-home community of 3000 dwellings on a site with existing social housing. Located in the growth corridor of Macquarie Park, the new development includes 950 social units and 128 affordable renting units, and has 18 buildings of up to 24 storeys, 34,000 square metres of public domain, new


Lauren Kajewski

The affordable housing has been peppered throughout the development and is not discernible from private housing. Residents share lobbies and common areas. Ivanhoe includes a complex mix of market, social and affordable housing.

roads, a village green and pockets of remnant bushland.

Both projects, said Allen, emphasise the importance of diversity of building use and diversity of design.

At Newmarket, the project team saw the value in having different architects working on the project to provide diversity of design. Themes of nature, community, generosity, homeliness and character provided cohesion in three distinct precincts.

At Ivanhoe, the majority of floorspace is privately owned residential, a significant proportion is social and affordable housing. There is also aged care, childcare, a gym, swimming pool and retail on the site. The design process was collaborative and involved a range of different architects, with the project to be built over a 10 to 15 year period.

"As inequality increases and the lack of affordable housing supply increases, waiting lists also balloon. In some places waiting lists for social housing are now greater than ten years. Crisis housing demand has also risen."

"In NSW we have seen very little if any social or affordable housing provided in new private residential developments. In what's likely to become the norm for urban renewal projects, Randwick Council included the provision of some affordable housing in Newmarket - nowhere near what Landcom wanted - but some," said Allen.

The affordable housing has been peppered throughout the development and is not discernible from private housing. Residents share lobbies and common areas. Ivanhoe includes a complex mix of market, social and affordable housing.

According to Allen, research shows a mix of 70/30 market/social housing is the optimum to promote social inclusion and successful mixed communities. This is challenging where traditional development is through strata title, which is not suitable for social housing. This makes true pepper-potting difficult. At Ivanhoe this was overcome to some extent through multi-core buildings with different cores for different tenures and great care taken not to segregate community services and facilities.

"The answer is diversity of uses, tenure, design and opportunities. Developers can no longer aim at single tenure type of market," concluded Allen. ■

Matthew Allen

BUILDING TOMORROW'S COMMUNITIES

By Landcom senior manager sustainability Lauren Kajewski

In November 2017, Landcom released its new Sustainable Places Strategy with ambitious goals to enable carbon neutral, water positive, and zero waste communities by 2028. We didn't stop there – we also embedded social equity, inclusion, resilience and jobs creation as fundamental components of our approach to sustainability to make a difference to the long-term sustainability of our built environment, and to communities.

Since the Sustainable Places Strategy was adopted, Landcom has stepped up the focus on social health, equity and inclusion through our recent Healthy & Inclusive Places survey. The survey of residents at eight Landcom communities sought community feedback across a wide-range of topics, including design, connection, liveability, affordability, education and wellbeing. With more than 500 participants, residents were happy to share their views on what it's like to live in a Landcom community.

The insights we gain when communities are willing to share their experiences with us are invaluable. It helps Landcom gain a better understanding of what we're doing right, and where we can improve.

For example, we're looking at how Landcom can best enable enduring jobs beyond construction to support local employment and build community resilience to climate change. We're also setting up sustainability rebates for new homes, making them virtually carbon neutral to support residents with affordability well into its lifecycle.

A great success recently has been our first Skills Exchange Program, hosted at the Claymore and Airds social housing urban renewal projects near Campbelltown. The program is a partnership between Landcom, Land and Housing Corporation and TAFE NSW that aims to give back to social housing communities by enabling residents to gain new skills to help them enter the workforce. In collaboration with placement providers and employers, long-term unemployed and under-employed people were recruited into TAFE NSW skilled programs, providing access to vital training and industry work experience, and ultimately into long-term employment. Not only did the program provide social equity benefits for participants, it also realised savings to the NSW taxpayer.

The program cost Landcom $30,000 to deliver, but realised in excess of $280,000 worth of value to government, based on a six-month projection, through avoided costs, such as welfare payments. There were also immediate benefits to the individual participants who gained employment, including increased self-esteem and financial independence.

Landcom is looking to bolster social cohesion throughout its communities, as resilience has been identified as an emerging issue for Sydney in the Resilient Sydney Strategy, funded by the Rockefeller Foundation, as part of the 100 Resilient Cities program. One exciting initiative we are working on is a new partnership with the Welcome Dinner Project, which is focused on connecting people who are new to Australia with established residents living in Landcom communities. As part of this partnership, we recently held Welcome Dinner facilitator training for local residents in our Thornton community at Penrith. These residents are now equipped to hold dinners of their own to create greater community connections.

As a state-owned corporation, we're one of the few developers that can deliver community development-based programs and services with the added bonus of a social return on investment to the people of NSW. Landcom is looking to invest in social equity, inclusion and resilience for the immediate and long-term benefit to the people of NSW.

LANDCOM

Sustainable Precincts & Communities: The Q&A panel

Moderator:

Lisa McLean

Chief executive officer, Open Cities

Panel:

Haico Schepers

Principal, building physics, Arup

Terry Leckie

Founder and executive director, Flow Systems

Lauren Kajewski

Senior manager sustainability, Landcom

Matthew Allen

Director, Bates Smart

Q. Lisa McLean, moderator: Haico, how important are proof of concept projects like ANU to get more precincts off the ground, and willingness of developers and clients to share those experiences?

Haico: Proof of concept is really important. There are very few good examples of smart grids. An important one here is the link with ActewAGL so it is something the market can take up in the future.

The market is pretty good at sharing data. The biggest issue in that space is how do we deal with some legislation issues, and using examples of prototypes is also important. If you're doing an apartment block, for example, with strata title the legislation requires you have to be able to have any energy provider provide, so that limits the ability to share power between people - offsetting power, etc.

Q. Sarah Reilly, Cred Consulting: When thinking about social cohesion, Sydney is not very socially cohesive. When thinking about creating new developments are you thinking how to promote this?

Matt: The short answer is yes. When thinking about design of these communities we try to take the focus off individual dwellings and think about the constituent parts of what makes up the place that people come home to so in Ivanhoe there's been more consideration of public domain than homes themselves.

Q. Craig Roussac, Buildings Alive, to Terry: It frustrates me that a large part of our water bill is access charge that you describe as leakage of money. At a precinct level if we've gone from national to state to precinct I still want to be able to access that backup if my tank's empty. If I'm not leaking money how's it being paid for? So if you draw a boundary, what happens

if you want to draw outside that boundary periodically?

Terry: It's about the architecture of the infrastructure you've got in the ground. Haico talks about micro grids, I talk about embedded networks or local networks. So you need a local network in your home or in a building and those are connected to a community network within a precinct and then you need to be connected to a regional or national grid. Each of those has their own economics but they're designed to allow you flexibility. So if you want to spend some money to generate some water or electricity, then you reap the benefit of that. But at the moment you can't, so as soon as you connect you're paying for that whether you use it or not. We need to break that nexus but you've got to set it up from the beginning. Who knows what future technology may bring?

Q. Janet Chappell, Landcom: I think Ivanhoe is fantastic with its diversity. We want to pepper-pot at Landcom with different price points and tenures but in an apartment block it's difficult to overcome the strata fees and affordable housing being subject to that. How did you overcome this at Newmarket in Randwick?

Matt: My understanding of the terms of affordable housing provision in councils like Randwick is they're less prescriptive about what is required. They're interested in upping the quantum of affordable housing and if they can get developers to do that they're happy with that. In Newmarket, the council owns the affordable housing units so they benefit from the capital increase in value of those units and I think they're happy to negotiate with the community housing provider regarding the strata fees. They do have to participate in the strata scheme – there's no simple way around it.

Haico: It is possible to use some of the money made from generating power from rooftop photovoltaics and other systems to subsidise the costs associated with providing affordable housing. This is something we're conscious of in some of our projects.

Lisa: Terry, you touched on the fact it's possible to have free energy in these precincts. Can you expand on that?

Terry: We talk about creating these local utilities where you have someone who is an advocate for purchasing power and water and takes on the burden of responsibility for that infrastructure. That then helps you capture that resource and make the profits available to the community and then what you get whether in dividends or shares is a return. You might even get enough of a return to get it free. But you get a sense that it is your utility and you're getting a benefit from that and it's also a business so you're getting money back.

David Chandler, Western University Sydney: We seem overwhelmed with projects on steroids – very large apartment sizes. Are we headed towards a society that is dependent on assisted housing? Because I think that's a bad track.


David Chandler

We should be focusing on the middle section of the market. Why aren't we?

Terry: We're talking about housing diversity. If there's a missing part let's create some economic structures that encourage that. We are seeing some interesting models around affordability, not subsidised but different mechanisms. That's tough because you have to get maybe a tweak to the legislation or support from government, but those models are there. I think if you watch this space there'll be some interesting developments over the next few years.

Q. Lucinda Hartley, Neighbourlytics: Do you think we need industry standard frameworks for targets on social sustainability in the same way we do for environmental performance?

Lauren: I think some of the first emergence of this is through the Resilient Cities work, and it was brilliant to see that they looked at not just things like heat stress but social cohesion across Sydney and they put a target on it to track and monitor. And we should give credit where credit's due. Australia's tier-one developers do remarkably well on international scales in what they're providing and most of them have social sustainability targets. So I think there is some leadership within industry in the absence of commitment and targets from government. I don't disagree [about targets] and you'll see work in local government on this. The City of Sydney recently did work on this. Maybe it's a good idea or maybe it's better to keep it in the private sector and see how they push for progress. Nothing wrong with competition driving this. You start to see it being driven by the investor market. The more data we have and the more focus there is on social inclusion, the more we can do something with that.

Q. Dan O'Hare, Bond University:

How can our streets benefit from advances in technology and incorporation of Indigenous thinking into design?

Haico: One of the things with autonomous vehicles is what's the impact on the street and urban design changes? Key one is where do they stop to drop off and pick up?

Matt: An ongoing frustration of mine is they're designed for cars and we don't get great usable spaces in our streets, which make up the vast amount of our public domain. We really need to rethink so all of our spaces through which cars move are designed to benefit pedestrians and cyclists. We need to get some control back.

Terry: Not just above ground, but below ground. There are some initiatives happening about services trenches that create some space for us to be able to plant some trees. We have a free-for-all under the ground where we struggle for some allocation and we just use up all the space and then there's no space for trees. There are some councils that are sick of that and want more trees.

And to sum up, one initiative from each speaker to help increase social inclusion:

Matt: The big barrier for me is our ownership models – it's stifling innovation in embedded energy networks and energy consumption and innovation in mixed tenure. It's limiting the options in what we can do. Strata is bad.

Terry: We should try to showcase, so we take some land and showcase what's possible and then let legislation and regulation follow. It seems to be easier and more trusting and we've been focusing on the economics to break down barriers.

Lauren: For me it's about designing for inclusion. We've done a lot of work in inclusive places and having spent time in a wheelchair and on crutches I know how bad access and inclusion in spaces can be. We need to make sure everyone is included and not reliant on others.

Haico: I'd like more physical interaction and walkability so we bump into each other more and become more inclusive of each other. ■


Lucinda Hartley

The investor panel:

How do we efficiently allocate and price resources to pay for what we want?

Robert Harley moderated a panel of major players in property and sustainability to understand the motivations that drive their investment decision making. This is his report on the panel, first published in T*he Fifth Estate*.

Moderator:

Robert Harley

Former AFR property editor

Panel:

Michael Cook

Group executive, Investa

Chris Wade

Property lead, Clean Energy Finance Corporation

Campbell Hanan

Head of office and industrial, Mirvac

The owners of Australia's largest office towers are looking towards the next wave of sustainability initiatives.

Chris Wade, who heads the property business platform the Clean Energy Finance Corporation was joined in a panel by Mirvac's head of office & industrial, Campbell Hanan the Investa Property Group's general manager, Michael Cook.

Wade acknowledged that Australia's premium grade office sector, which Mirvac and Investa both represent, was setting "leadership standards" in energy efficiency.

His point was underlined this week when Australian and New Zealand property funds once again topped the global ranking in environmental, social and governance performance in the GRESB results for 2018.

However, Wade noted that the sustainability performance differed by sector, with housing – Australia's biggest, but most fragmented, property sector – lagging the commercial sectors.

Hanan said that since the start of the century the big institutional property owners had cut energy usage in their portfolios by 35-50 per cent through capital investment and "good return on effort".

"In Australia's real estate operators, you have an institutional group of owners who are particularly focused on sustainability from an energy, water and waste perspective," he said.

Cook said sustainability was about "doing more with less", particularly because, as a fund manager, he was investing other people's money.

"We are mindful when we do anything that [it's] not our money," he said. "We have a responsibility to use our resources as wisely as possible.

"Now we are looking at what is the next phase of sustainability."

Investa has committed to a zero carbon operation by 2040. "We think we can do it 10 years earlier," said Cook.

And Mirvac has just committed to zero carbon by 2030.

So how will that be achieved? "I don't think anyone knows, is the short answer," said Hanan. "Every institution knows that the technology that exists today will not get you there. So it's a leap in faith, in part."

One innovation he does expect is the upgrading of technology to harness solar power from facades, not just roofs.

Cook said that to date the industry had not invested a "heap of capital" in sustainability. "This is where we need some brain power and to spend some money," he said, noting that for the Telstra headquarters tower in Melbourne, Investa had opted for the more expensive lift upgrade because it would cut energy use by 35 per cent.

The majors are also looking beyond technology.

They will encourage their tenants to save energy. "The holy grail is when I have all my tenants on the same page," said Cook. "At 60 Martin Place (one of Investa's office tower developments in Sydney) we have some very green clauses in the leases. Every tenant and tenant representative scrubbed them, but we held on."

Wade said that gains in energy efficiency could come from the smarter use of existing technology. "

The CEFC was established in 2010 with seed funding of $10 million and a mandate to invest in climate bonds and equity funds that target clean energy gains in infrastructure, property and agriculture. Already it has invested $1.2 billion in property and, targeting commercial returns, has encouraged the private sector to invest another $2-3 million.

"In some ways you can have your cake and eat it too," Wade said.

He acknowledged that the money is really just a "drop in the ocean." The real significance

is how the CEFC can show the way through case studies, new standards and working with partners.

The CEFC invested $100 million in one of the Investa funds to support the commitment to zero net emissions by 2040.

Cook said the CEFC gave his group "a nudge" on issues like data sharing, a sustainability tool kit for tenants, and introductions to experts in other sectors such as solar power. "They have pushed us," he said.

The CEFC is also an investor in the new Mirvac Australian Build-to-Rent Club. Wade said it was a showcase investment in a sector where sustainability standards are still low.

"The building will use 40 per cent less energy than a normal apartment project," he said. "It just makes commercial sense. And it is using existing technology." ■

"We are mindful when we do anything that [it's] not our money... We have a responsibility to use our resources as wisely as possible" – Michael Cook

Terry Leckie, Flow Power

We the People panel: Will we get the urban future we want, and if not, why not?

A big and burly session to look at the massive challenges facing our future with panellists split in two: one representing the stakeholders in our future built environment; the second representing the development industry responsible for delivering it.

Chief inquisitor and moderator:
Tim Williams, chair, open cities and cities leader Australasia, ARUP

Panel 1 –
The stakeholders in our future

Angie Abdilla, founder & CEO, Old Ways, New

John Austen, (ex Infrastructure Australia) and writer

John Brockhoff, Planning Institute of Australia

Jorge Chapa, head of market transformation, Green Building Council Australia

Terry Leckie, Founder and executive director, Flow Systems

Panel 2 –
The people delivering the future

John Alexander, Member for Bennelong

Tasha Burrell, program director, Western Sydney, Landcom

Jennifer Hughes, partner, Baker McKenzie

Davina Rooney, general manager, sustainability, Stockland and chair national sustainability roundtable, Property Council of Australia

Scott Taylor, head of Living Utilities, Lendlease,

Iain Walker, Executive Director, newDemocracy

Following is a selection of highlights: an extended transcript is published in The Fifth Estate here.

Embracing aboriginal cultural heritage in urban planning

Angie Abdilla kicked off discussion: "I'm a Trawlwoolway woman from Tasmania, and my father is Maltese. I think it's important to locate ourselves and where we come from to state how we connect. What are the ways in which developers overcome aboriginal cultural heritage as being considered an obstacle in planning and development to being a rich and deep source of inspiration and knowledge, including connection to place, understanding of place, sustainability principles and practices?

Davina Rooney: "It's a long journey. We're lucky to have reconciliation action plans to use as a starting point. Some of the first things are cultural understanding and awareness.

At a higher level it is about involving Indigenous voices in our teams.

We're still on a journey with the RAP and I'm owning up to this. We're now looking for higher opportunities, such as taking the RAP to the unique indigenous community on a site to see what they can bring and which aspects of the broader framework they are interested in and redeploying it at that location alone. The cool part of that is they are directly influencing our activities and programs. "

Scott Taylor: The penny is starting to drop. "When you do product development, you think about an outcome and a process, and this is important but it goes deeper than a single project. You can't learn 65,000 years of history overnight. You've got to bring this thinking into the fabric of the business and have a continuous conversation. This diversity and understanding has to permeate every part of the business."

Tasha Burrell: The development industry "hasn't done very well on this yet" and is working on ways to improve. Recent Landcom initiatives include the Indigenous community of the Blue Mountains and Penrith region approaching Landcom about the land they own and what land they wanted to take back.

"We have an equal partnership to work together so that they can look after the land and how this will involve into a money making venture… We now have eight young intelligent people who are working with land councils to see how we can better integrate Indigenous needs into the developments of the future and put this into a new framework."

Tackling the big problems in our cities

Tim Williams: "I can see we are looking at best practice here. But we need to get this kind of thinking across the whole of the development sector to the smaller scale operators as well. (To MP John Alexander), we are talking about the challenges of keeping up with growth in our cities, you are working on transport infrastructure in cities. Do you think we've got it right?"

It was just a week or so before the federal government's mammoth Building Up & Moving Out report into the development of cities was due to come out. Alexander had chaired the House of Representatives committee that authored the report.

John Alexander, MP: There were two sections of the report, he said: One devoted to retrofitting infrastructure and land use plans in Australian cities, the second, strategic decentralisation. "We need incentives for immigrants to live in regional places by providing housing opportunities and quality living standards."

Tim Williams: What is the federal government response to these findings?

John Alexander: There is now a realisation from both major parties that politicians need to liberate themselves from what has been a destructive 10 years in Australian politics. The appetite for "a contest of ideas" is growing on both sides.

"The way to win people back is to focus on policy plans and put forward a vision. Central to any city plan or development is opportunities for housing for the next generation. We are in a 60 year low of home ownership and it's predicted to get to less than 50 per cent in the next eight years. And we have to strategically decentralise, so the way to create incentives for immigrants to live in these places is by providing housing opportunities in those regional areas, and make it viable, and provide a quality of living.

This idea of high speed rail, which has been tossed around for ages without anyone understanding the purpose of it, is rapid connectivity. Commuting is not judged on the distance you commute but the time. With high speed rail, Wollongong, the Southern Highlands and Gosford are 15-16 minutes from the CBD. The uplift of the value of that land adds the perfect storm of opportunity to value capture and then fund infrastructure through value capture. This also uplifts the value of lands brought into the Sydney or Melbourne market.

"This is a vision that has captured our party and I think there is some support on the other side. My Labor co-chair, Sharon Bird, and our whole bipartisan committee thinks as one in that we need to get real plans taken to our agencies and department, and not interfered with by our politicians."

There should be a real understanding that when a politician announces an infrastructure project, that it should be considered a failure of that government because the project should have been planned for and rolled out, he said. "Infrastructure Australia is a pointless group without a land planner or master planner to determine what land use will accompany the infrastructure." The funding mechanism should also accompany those two. "There should be a commissioner to bring those groups together. Then the only role of the government should be to keep the whip out and make sure those plans are delivered."

Broken democracy and its impact on planning

Iain Walker supported much of Alexander's vision but pointed out that "high speed rail is a great idea until the first house has to be demolished". All tiers of government rely too heavily on public opinion, rather than judgment, to make decisions, he said. When people stop to think, they realise that there are often benefits from new development. A good solution is to listen to everybody, not just the disgruntled, and to stop selling people answers – policymakers and planners should instead share problems and ask for public involvement in planning decisions in ways that don't antagonise. Did Alexander have any ideas on how to overcome this apparent failure of the democratic system?

John Alexander: "One of the challenges with value capture is aligning the three levels of government with the stakeholder, the landowner, as well the developer in a common cause. On the topic of high speed rail coming into Sydney, once it gets into the city it will be underground so it won't impact housing. It will create a CBD wherever it is located. And the three components have all agreed that this will be in the Homebush area. There will be a new CBD there."

A lack of collaboration is holding us back

Terry Leckie asked the developers some questions: "I'm in the market for a car. Someone told me it would be stupid to buy a combustion car, I should buy an electric car, what do you think? I'm worried because I keep cars around

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Could "net zero" be a more exciting proposition; the notion of no bills rather than 20 per cent less? – Davina Rooney

five or six years so will it hold its value? I'm also in the market for a house, it doesn't matter if apartment or house. I see solar panels, grey water, smart systems, etcetera. I'm asking developers what should I buy and why?

Scott Taylor: In an ideal world, Terry should be able to move somewhere he doesn't need a car. This remains difficult because the built environment continues to operate building-by-building and block-by-block, making it difficult to share electricity, water, and mobility, among other amenities. Government procurement is very fragmented and potentially creates "Frankenstein solutions". If the federal, state and local governments could unlock a new paradigm of procurement, the shared economy would be able to thrive. "Then Terry could move to Pyrmont and not need a car."

Tim Williams, to **John Austen**: Sydney's far west is going to grow in the next 20 years and become warmer, how do we design to accommodate this?

John Austen and John Brockoff both agreed that persuading three levels of government to agree on whose responsibility the big issues are – let alone act on them – is extremely challenging.

John Austen: "A few comments. The first is the million or so people who are going to move [west], is they'll chose to move there. What they'll ask from departments and governments is to make more of it. Second comment is after being in Infrastructure Australia there was a major High Court decision that redefined the powers of the federal government (or how people perceived them). Prior to that was assumed the federal government could fund anything. It can still fund anything, but only through grants to the states. So Commonwealth and states need to fundamentally recalibrate their powers rather than go on the pre 2014 trajectory."

"During Whitlam we had a period of in and out of urban affairs, it was considered the 'policy Vietnam' in Canberra to be avoided at all costs. Paul Keating was more involved, Howard years there was the perception that Commonwealth is not responsible for congestion, Rudd/Gillard were more interested in planning. So there's been an in and out of urban affairs without a constitutional responsibility. There is now a rude challenge for the Commonwealth and states: People expecting something from the Commonwealth and the states.

"There's a realisation that the way in which our society is governed hasn't caught up with technology, infrastructure, population, and immigration challenges. How do we govern ourselves when our assumptions since the second world war have very much changed?"

John Brockoff: The Commonwealth is "spatially blind" and "pulls the levers" on concepts such as taxation (think negative gearing) but fails to realise how these actions affect places and impact the success of cities.

Scott Taylor: Governments are not solely to blame for subpar planning decisions. Recent research commissioned by the Property Council City Roundtable found that, in Australia, academia, government and industry struggle to collaborate to solve the challenges of our built environment, whereas in other countries, including the UK and US, the private sector takes a leadership role, and academia, government and industry do a better job of this.

Sustainability has an image problem

Tim Williams: Is lack of collaboration holding us back?

Jorge Chapa wants to reframe the question of sustainability to one of quality: "Do people care about the sustainability agenda? I'd like to reframe that. Australia is a developed country. I'd expect things to be built well. So I'd like to reframe the question of sustainability to a question of quality. I think the breakdown in social licence in development is we're not getting the quality outcomes that people expect out of Australia's built environment. So my question to the developers is am I on the right track, and how can we get equality back? Maybe the rest of the industry is not playing its part."

Davina Rooney agreed: The degree to which consumers value sustainability is fundamental, she said. A recent survey found that at the time of purchase, people didn't express concern for or value sustainability, but after a year or so they changed their minds when they realised that they were more comfortable and were receiving lower bills.

She wanted to know what it will take to get the residential market excited about sustainability. Could "net zero" be a more exciting proposition; the notion of no bills rather than 20 per cent less?

Jorge Chapa said residents are starting to expect more from their homes – "I don't want a slightly better house, I want a damn good house".

It's an exciting time for the residential sector, he said.

The economic argument isn't resonating

Tim Williams asked why the economic case for renewables is frequently obscured so that we only hear about on-costs rather than the financial benefits of these energy sources.

Davina Rooney said that the Property Council and the Australian Sustainable Built Environment Council (ASBEC) had commissioned research into which existing technologies can transition the built environment down to net zero by 2050, and were advocating their finding to government. This is the first piece in a big puzzle that is selling the business case for renewables.

Tasha Burrell said one method of pushing the economic benefits of sustainability is by selling a house at a certain price, and then returning some money to the purchaser within two years if the occupants make sustainable renovations or additions to their homes. "It's an easier thing to swallow than if we say: if you don't put it in we'll charge you more, and if you do, we'll charge you less."

Tim Williams: I want to to ask Jennifer Hughes about her concerns around quality.

Jennifer Hughes said controls on developers are currently too weak to ensure we receive quality buildings. "When developers decide to build, they pull out the guidelines and the building code, and work out the cheapest way to construct their building.

"The building code has improved in recent times, it now requires a 6 star NatHERS for

residential building, for example. We do have ecological sustainability as a goal in the environmental sustainability of a major object. The goal comes into consideration on a planning level but for building a single building for residential or accommodation, the controls we have are relatively weak. They could be a hell of a lot better than they are. I believe we need a legal response to this. I do think we need improvements in building code and consistency in planning controls to drive developers to build quality apartments that people will want to live in."

There are ways to improve the system, Hughes said. "I don't think it's fundamentally broken or flawed, but some tweaks around the edges would make things better."

Tim Williams: Do people care that their home is sustainable?

Iain Walker: I run a democratic reform organisation and to your point, there is a gap between opinion and judgement. If there's one thing wrong about how we make public decisions across all tiers of government is we rely on public opinion, not judgement. If we get arrested, we wouldn't ask for a 1000 person opinion poll to see if we should go to gaol. We will take a jury, a small sample of people who will hear the evidence and think about it as group. When it comes to property development, people don't know about the tiers of government. Opinion responses are off track. People always say they don't like development. But when they look deeper they start to realise the cash they can yield from their built environment.

If you announce a building, you'll only hear from the angriest people. All we ever say in this question on governance are two things:

1) Hear from the representatives of people. You will need to hear the entrenched views and also talk to the rest.

2) Stop trying to sell people answers. None of us like to be sold answers. Tell your partner today that they need to go to the dentist, and they'll say they don't want to go to the dentist. But what if you ask how they will [continue to] have teeth, it's different.

We need to ask people how can we pay for the system we want and we won't be default rejected. Share the problem – population and congestion – then put the question to the people.

John Brockoff: People don't understand how to do density well. Thematic concepts like density, population, they don't gel in people's minds. It's how their local neighbourhood, their community, is going to work.

Tim Williams: (addressing John Alexander) So about the whole idea of managing our cities? It's critical to the idea of buying into growth. How do we know when we are making progress on the agenda? What would you like to see in terms of buy-in from the federal government as part of a response to the report [Building Up and Moving Out?].

John Alexander: "I'd first like other politicians and government officials to read it. And then they need to respond by acting rather than ticking the box. It's commonly understood now that this plan is a response to solving a problem that came about because there was no plan. It's a response to siloed departments, the ad hoc-ness of responses to problems rather than looking at the problem in its entirety.

"We do the same with droughts, maybe we should be doing something to stop the drought or consequences of drought though infrastructure. This paper will be a launch pad for a point in time for the end to this reactionary culture that we have, and the commencement of planning infrastructure, attaching it to land use, and masterplanning. This reactionary approach to planning can lead to all sorts of problems, such as failing to include important stakeholders in the discussion.

"During the inquiry, the committee found water utilities were frequently excluded from planning processes, which sometimes meant freshly cemented roads and sidewalks were then pulled up to make way for water pipes. Who would have thought people living in those houses needed water?"

Tim Williams: When will this end?

Terry Lecke: "I think we take planning and decision making for granted. We expect that planning is done the right way. Look at Western Sydney you might be pleasantly surprised. There are simple families trying to buy a place in a community where you feel included. You want the people building this place to think about this. If there is a drought, who is thinking about that? I don't think we would have thought all of us needed a smart phone a while ago. What do we want, given the opportunity to build a new city? We want to be pleasantly surprised."

Angie Abdilla said we shouldn't just be focusing on the economic drivers of sustainability but that we should also consider our personal relationships with Country, which will deepen cultural identity and bring back personal responsibility. "We should consider how we can empower residents of a new community development to become custodians of that Country."

What about water?

With the wheels finally now turning on a more sustainable energy system, it's time to think about improving our water systems. Scott Taylor said we're up against the same issues with water as we are with energy, and that bringing all tiers of government together under a unifying policy will be challenging.

He added that technology might be able to help with such issues as recycling water, and this is something the public will need to learn to embrace rather than negate.

John Brockoff pointed out that technology is fine, but at some point, we need to start living within our means. He used Dubai as an example to warn that city-scale desalination plants lead to oceans so salty that all signs of life disappear and everyone can do 100 metres of the butterfly stroke, whether they can swim well or not.

A thought worth pondering. ■

"We should consider how we can empower residents of a new community development to become custodians of that country" – Angie Abdilla

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