



**WORKTECH™ ACADEMY**

# THE FUTURE OF THE SMART PRECINCT

A PHYSICAL-DIGITAL INTERMIX  
FOR CITY INNOVATION

*A report by Mirvac in partnership  
with WORKTECH Academy*





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# 01

## EXECUTIVE SUMMARY

Smart precincts are digitally enabled, mixed-use urban districts that combine the latest technologies and smart services with new property and place-making strategies. From London and New York to Sydney and Seoul, they are emerging from the ground to form the essential building blocks of the future smart city.

When Mirvac launched its **first report on smart precincts** in March 2017, we focused specifically on their essential principles and on ways to activate them. We coined the term **Intermix** to describe how the various elements might be woven together in different configurations and models.

In this second report, launched in March 2018 at WORKTECH Sydney, we have widened the angle to explore the future of the smart precinct in the context of city innovation and regeneration. We look in particular at the physical-digital mix of the smart precinct, at how it is renegotiating the web of relationships between city authorities, citizens, businesses and employees, and at how a balance can be achieved between preserving the human experience and the influx of new technology.

To produce this second report, we worked with WORKTECH Academy, the research and insight platform for the WORKTECH conference series, to conduct in-depth interviews with a range of international experts in urban design, architecture, technology, infrastructure, property and city-making (see appendix page 24).

Our experts not only critiqued the Intermix concept, but also helped us to sketch out the drivers of change that are shaping the smart precinct, emerging perspectives that are reframing these innovation districts in relation to the wider city, and the key challenges that they face.

The report begins with a review of the Intermix concept and a discussion of the key social, environmental and technological drivers of change that are shaping smart precincts. It then goes on to set out a series of emerging ideas, which position the smart precinct as a giant, negotiated testbed for urban innovation in which new ideas and technologies are piloted on a bounded site before workable solutions are scaled up and introduced in other areas of the city.

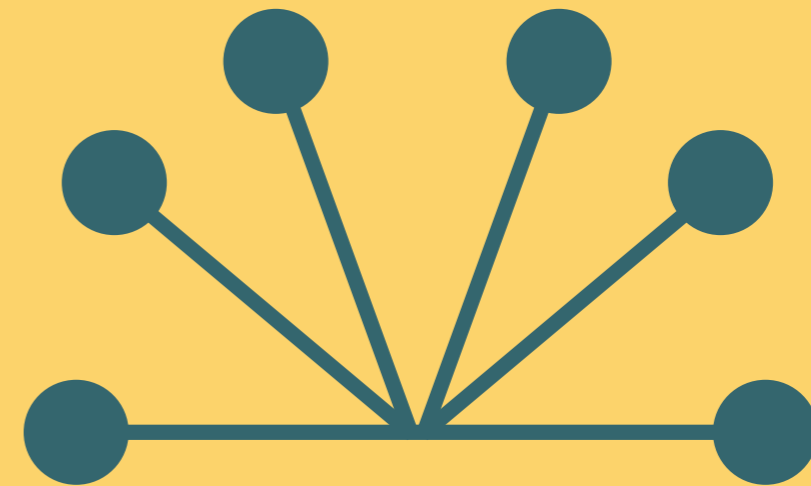
'The New Bargain' describes how technology companies, citizens and city planners must strike up a new deal to ensure all parties benefit from the flow of data in the innovation testbed of the smart precinct. 'The Civic Supermind' describes how smart precincts can generate new forms of collective intelligence in an approach to urban technology that harmonises local specificity with global innovation capacity and economies of scale.

'New Space Logics' describes how smart precincts can create new models of collective organization, rethinking traditional models of living with young and old sharing reciprocal arrangements, and shaking up the corporate campus with a 'suits and sneakers' approach. 'Creative Citizenship' describes how smart precincts can enable people to engage in new ways, using the digital tools of participation to become active citizens and not just passive consumers of smart services.

Finally, 'Foreground-Background' describes how smart precincts can create a new blend of urban change and continuity, combining noisy public areas with spaces for quiet reflection, and elements of both novelty and heritage.

Six key challenges for smart precinct development are identified in the report – the challenges of Curation, Sustainability, Diversity, Privacy, Typology and Fairness.

The report concludes with a set of recommendations for property developers, business occupiers, technology innovators and city authorities to address these challenges on the ground. Each challenge goes to the heart of the smart precinct, its impact on wider city innovation and the need for a balance or a bargain to be struck between the human and the digital.



*Each challenge goes to the heart of the smart precinct, its human-digital intermix and its impact on wider city innovation.*

# 02

## INTERMIX – ACTIVATING THE SMART PRECINCT

Smart precincts are today being designed, built and operated at an intermediate scale between the single intelligent building and the larger-scale urban plan. They are a useful and understandable unit of organisation for thinking about how new technology will reshape city living and working over the next 20 years.

Intermix is a term that Mirvac coined to describe a coordinated approach to activating the smart precinct. Its dimensions include more than the blend of physical and digital, but also public-private partnership, the mix of different space uses from retail and residential to workspace and transport, the intermingling of large corporates with start-ups and scale-ups, the co-location of large retail chains and small boutiques, and the bringing together of different social interests and groups. Intermix is also a platform for discussion, a way of framing key issues related to smart precincts.

In our first report, we identified eight key guiding principles for activating the smart precinct: One Connected Community; Shaping the Sharing Economy; Fluid Boundaries and Flow; the Curated Precinct; Flexible Space Matters; Makerspace Culture; the Wellbeing Dividend; and Destination, not Dead Zone.

These principles were applied to four smart precinct typologies, although we know there are many more, and evidenced through built schemes, for example: a workspace-led Enterprise model was showcased through Mirvac's ATP (Australian Technology Park) in Sydney (see page 20); a retail-led Emporium model was described through the lens of the 100-store Hudson Yards precinct in New York; a residential-led Haven model was evidenced through the Songdo smart precinct attracting young professional families to live near Seoul in South Korea; and a transport-led Interchange model was given expression by Argent's landmark development around King's Cross Station in London.

Our first Intermix report on smart precincts was presented not just in Sydney, but also at WORKTECH conferences in San Francisco, Toronto and Hong Kong as well as a host of other events, meetings and symposia around the world. Our intention was to open a debate about a subject that we believe has been given insufficient attention. We certainly achieved that aim, receiving an abundance of useful feedback on our ideas, principles and typologies.

This second report takes the Intermix story forward, projecting into the future to explore how fully activated smart precincts might influence the innovation, inward investment and regeneration strategies of the wider city.

Smart precincts have been described as 'built from the internet up'. As such, their hybrid nature challenges any conventional approach to urban development head-on. The report suggests that in all areas of development, a new bargain or balance must be struck to ensure the human and digital elements of the smart precinct can be harmonised. A key question is therefore: how can a tech ecosystem be developed in the smart precinct without losing the 'human' experience?

*How can a tech ecosystem be developed in the smart precinct without losing the 'human' experience?*



# 03

## DRIVERS OF CHANGE

Smart precincts are being developed in response to some specific global drivers of change. We worked with our panel of experts to identify a series of intersecting social, environmental and technological shifts – from ageing populations and climate change to the impact of artificial intelligence – that are set to revolutionise how we will live and work in the cities in the future. These are summarised here as a prelude and a backdrop to the big ideas and challenges for the smart precincts that are emerging.

### SOCIAL DRIVERS OF CHANGE

The changing demographics of urban populations will impact the smart precinct in a number of ways. There will be growing numbers of older people in cities requiring not just care and support but also access to paid work and learning, as working lives extend far beyond normal retirement age. According to the United Nations, the number of people aged 60 years or over is projected to grow by 56 per cent globally between 2015 and 2030 – from 901 million to 1.4 billion – and the biggest growth will be in cities.

Digitally-savvy millennials, who will make up three-quarters of the workforce by 2030 according to Forbes magazine, will also be drawn to the smart precinct as a desirable place to live and work in close proximity, and to start up their own business – a prime ambition for four in ten university leavers according to Deloitte.

This generation and new Generation Z entrants to the workforce will express changing social attitudes – they will be more socially conscious and demanding of corporate employers to demonstrate the values of citizenship and community.

Their widespread use of social media (such as Instagram, TripAdvisor and their successors) will make precinct developers, managers and owners more accountable – experiences in the workplace and with public services will be shared and scored, making the management of reputation in smart precincts a constant focus. Data use in the smart precinct will need to be balanced with ethics.

The rise of the gig and sharing economies – fuelled by a contingent, on-demand workforce – will change the employment profile inside these new urban digital districts. Office buildings will no longer comprise mainly full-time employees of the host organisation but a shifting cast of freelancers, part-timers, consultants, partners, suppliers and collaborators. Smart services will manage security, access and occupier experience in new ways as part of the physical-digital blend at precinct scale.

*Widespread use of social media by millennials will make precinct developers and owners more accountable for their services...*

As organisations everywhere increasingly redefine themselves as technology companies and chase the same tech talent, smart precincts will have growing sway over the talent agenda. Recruiting and retaining the right people with the right creative and technical skills, in an era when automation and machine learning will replace many routine jobs, will become a core mission for the precinct; in this context, the intermix of work with social functions such as living, learning, entertainment, hospitality and retail will take on added meaning.

### ENVIRONMENTAL DRIVERS OF CHANGE

Climate change will have a big impact on how smart precincts are shaped, making sustainability a priority principle for any new development and putting the onus on new technologies to support carbon-neutral ambitions. This approach will manifest itself in a myriad of ways, with a proliferation of low-cost, long life sensors linked to the Internet of Things and open building management protocols able to monitor energy, lighting, air quality, water and waste.

The more environmentally minded attitudes of millennial workers will drive change in this area, as the sustainability agenda at precinct level is linked to urban health and wellness. Closer monitoring of air and water quality, more promotion of active travel such as walking and cycling, and greater access to fresh, locally produced food will be evident.

Developers will give more consideration to the whole lifecycle of buildings in response to growing calls for more sustainability. Smart buildings will be predictive and adapt environmental controls in response to changing conditions. A more joined-up environmental approach between the physical and the digital in the smart precinct will build on persistent trends in urban

planning and design. These have already seen a marked shift away from individual city building or plot development to the scale of the neighbourhood, in which infrastructure, service, community and identity are considered as a whole picture.

The intermediate scale of the precinct between single plot and entire city is widely regarded as being more effective in managing environmental impacts, giving developers, occupiers and operators more scope to make a difference at district level. To do this, scale is required along with local government commitment – with the best examples being led by cities.

#### QUAYSIDE, TORONTO, USA

On a 12-acre slice of Toronto's east waterfront, Sidewalk Labs, the urban tech subsidiary of Google parent company Alphabet, is working with the City of Toronto to create a new, mixed use smart precinct that will test a wide range of new ideas. Plans include snow-melting sidewalks and automated awnings to mitigate the harsh Canadian winters. Walkable streets, autonomous vehicles, eco-friendly building materials and garbagebots are also part of a package of proposals submitted for public consultation. Quayside aims to be a model for sustainable development. Toronto already has a deep lake water-cooling system for a large portion of the city at district level.

## TECHNOLOGICAL DRIVERS OF CHANGE

Blockchain is the new technology on the 'block'. Widely known as the technology powering Bitcoin, it is now emerging as a potential game-changer in property development. As a digitised and distributed ledger to record and share information, blockchain-based smart contracting will make transactions more agile, transparent and resistant to fraud. In the longer term it will also link up with public utilities and data-driven city management.

New technology is disrupting commercial property models in other ways by introducing the forces of 'consumerisation' into development – this shift is evident in the rise of new models such as Workplace as a Service (WaaS), in which organisations pay a monthly or annual subscription for space that includes services, insurance and the handling of building operations and amenities.

Autonomous vehicles will have a major impact in opening up city neighbourhoods to urban populations such as people with restricted mobility access, and in enhancing the productive capacity of digital districts through their contribution to cleaner air, greater connectivity and a more diverse workforce. Car parks might also be repurposed as charging stations as people embrace electric vehicles and autonomous mobility.

AI and robotics will play a growing role in smart precincts, from the garbagebots that will collect the rubbish to the chatbots that will replace humans in many routine office jobs. Tech start-ups drawn to smart precincts will plot the future of AI, as well as the augmented human-AI combinations that are likely to be a feature of innovation

*The need to reskill the human workforce in the face of automation will make smart precincts focus on lifelong learning...*

districts. The need to reskill the human workforce in the face of automation will bring the education and lifelong learning mission of the smart precinct to the fore. A growth in creative and high-performing jobs, and in entrepreneurship, will in turn redefine how we think about workspace.

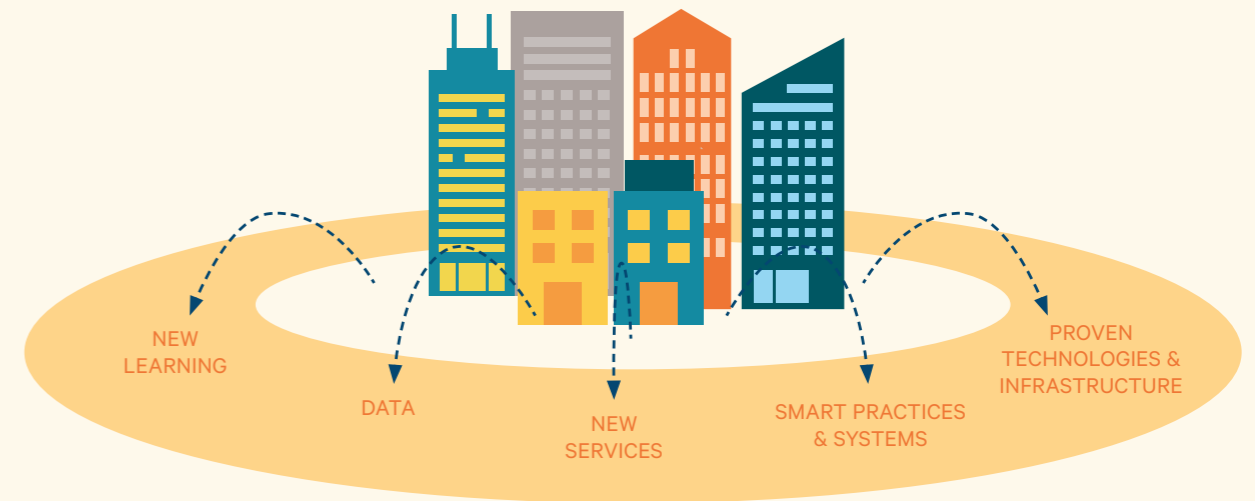
Other emerging digital tools will help to create more human-centred city quarters, such as outdoor acoustic technologies, workplace apps or real-time environmental sensors in the workplace. But while smart buildings will be able to collect a great deal of data due to the interaction with the Internet of Things with intelligent Building Management Systems, the data needs to be useful and actionable and not simply collected for its own sake. Data also needs to be taken out of individual silos and integrated across several systems within the precinct.

Many believe it is not just individual technologies that will affect the smart precinct but how meta-technologies are assembled and connected across the entire piece. Meanwhile technology will become a destination in its own right – property developments will find themselves competing not just with rival built schemes but also with smart services such as Netflix.

# 04

## EMERGING IDEAS

Interviews with our expert panel revealed some exciting new approaches and practices in smart precincts, alongside key challenges. Emerging concepts and models from around the world are summarised here:



### 'THE NEW BARGAIN'

#### Smart Precincts performing as giant testbeds for urban innovation

A new deal or contract is beginning to emerge between technology companies, citizens and city planners in new digital districts, along the lines of 'we're giving you our data – what are you going to give back to our city?' This takes the form of a 'new bargain' in which technology adds value to the human needs of urban living, and does not simply extract data from the smart precinct to create value elsewhere.

A key part of this 'new bargain' is that smart precincts are giant testbeds for urban innovation, working out which new ideas and technologies work and which don't. Those that work well are then

exported to the rest of the city, providing broader benefits beyond one district or neighbourhood as part of the bargain. The thinking is that cities can learn from and emulate smart practice in the most newly developed parts of town.

While some experts believe the payback should be in physical and digital infrastructures, others suggest private enterprises leading digital disruption should reinvest in community education and lifelong learning. Either way, the notion of the 'bargain' is likely to gain traction as citizens become more engaged in determining new services and ways of running city precincts. Many smart precincts are developed with an 'anchor' company as a catalyst, and a 'bargain' is struck between the needs of the anchor (often a major local employer) and the wider needs of the city.

*"Technology has to find ways to serve a human-centric urbanism"*

**Ken Greenberg, former Director of Urban Design and Architecture for the City of Toronto**



**PORT COVINGTON,  
BALTIMORE, USA**

At Port Covington in South Baltimore a new smart precinct is being developed on a 266-acre waterfront site. The catalyst for this ambitious US \$5.5 billion development is the need for sportswear giant Under Armour to expand with a new campus. For the city, the requirement to keep a big employer in town and safeguard jobs is part of the bargain, alongside the offer of new shops, homes and waterfront tourist facilities in the precinct. The Under Armour campus could eventually house 10,000 employees. New York-based Intersection is advising on the fusion of digital and physical elements to attract cutting-edge tech firms to the precinct. Facilities already include a design and manufacturing centre with the latest 3D printing technology.

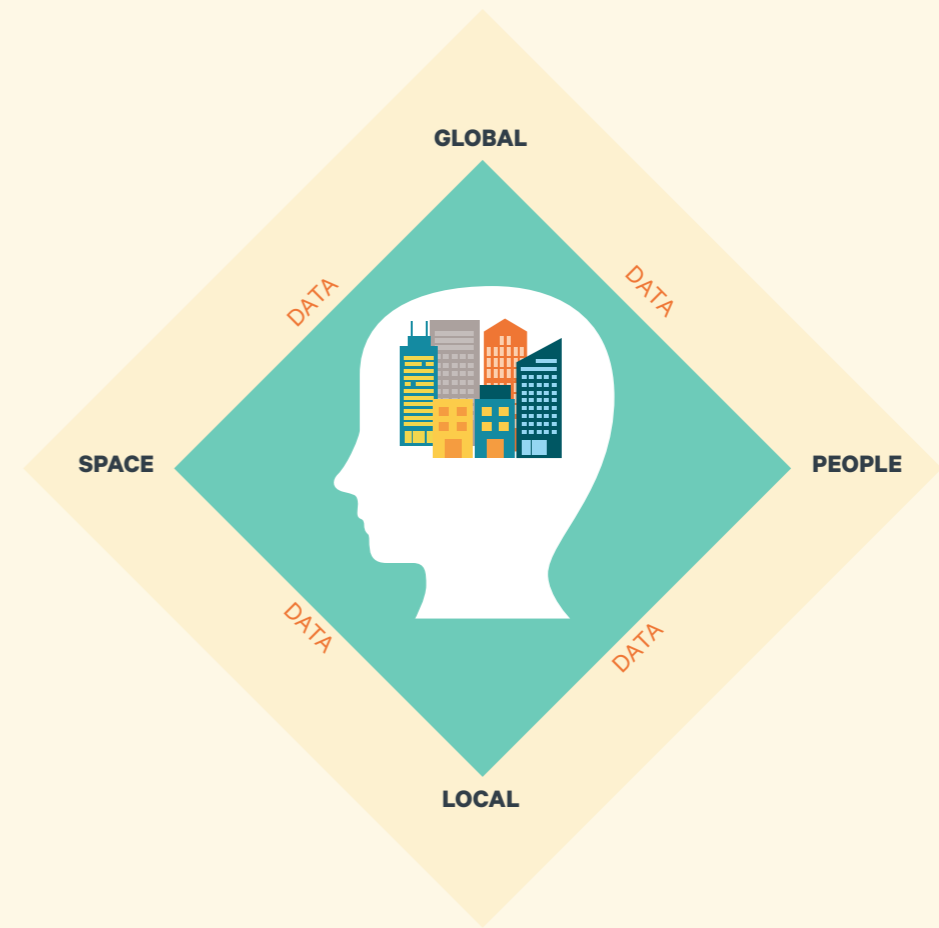
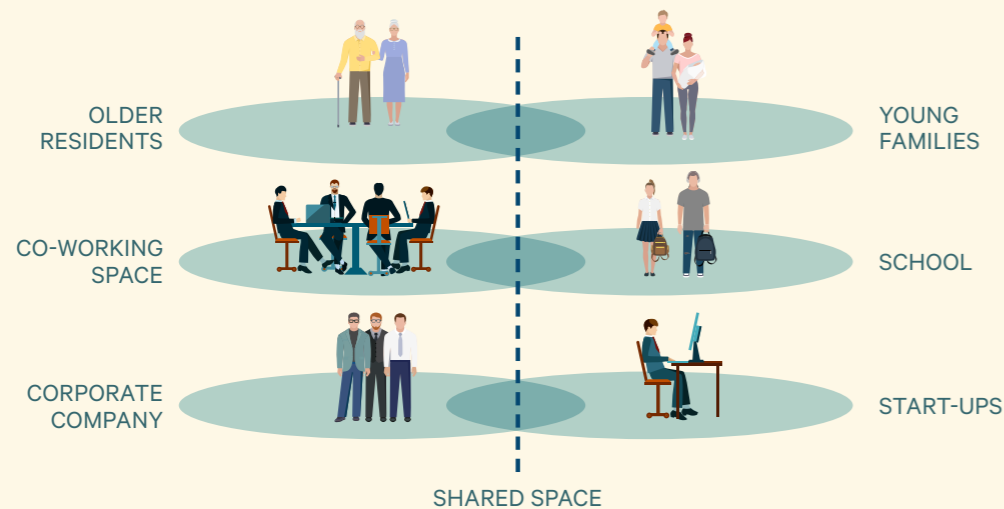
*Tech-enabled 'collectives of intimacy' will allow people to take on reciprocal roles in a community – retired people doing some child-minding, for example...*

**'NEW SPACE LOGICS'**

**Smart precincts creating new models of collective organisation**

A more imaginative mix of different space functions amid the fluid boundaries of the smart precinct could be matched by a more radical approach to how people organize living and working in these innovation districts. 'New space logics' – a term coined by Tarsha Finney, who leads City Design at the Royal College of Art, London – are set to emerge. These will enable new precincts to address such issues as eldercare or childcare through tech-enabled 'collectives of intimacy' in which people take on reciprocal roles in a community – retired people doing some child-minding for example.

This idea of new collective models of social organisation in the urban neighbourhood is gaining ground. WeWork's foray into WeLive and WeGrow (an education offer) is an example of the 'new space logics' trend from a different angle. As well as young and old citizens sharing the precinct, the concept of 'new space logics' extends into workspace where large companies are being encouraged to abandon their conventional office standards and formats to share space with tech start-ups and scale-ups in order to share ideas and innovate. This 'suits and sneakers' approach will give the smart precinct very different spatial characteristics to the traditional corporate campus.



**'THE CIVIC SUPERMIND'**

**Smart precincts generating new forms of collective intelligence**

Cities have always, through the proximity and interaction of people, capital, services and resources, exhibited a collective intelligence. Today, with the rise of super-connected digital technologies, this collective intelligence is likely to be significantly ramped up – and it can be seen most visibly in the smart precinct where data sharing across place will be achieved.

Boston-based MIT academic, author and entrepreneur Matthew Claudel describes this phenomenon as a 'civic supermind' – an approach to urban technology that harmonises local specificity with global innovation capacity and economies of scale. The civic supermind 'connects technology to people in place', says Claudel. It also depends on innovations in policy, regulation and place-based capital structures and valuations. Just as technology companies have monetised data in digital space, so too can value be generated from data in physical space. The question that faces us is how that value is captured, and for whom. As governments allow civic ventures to test new technologies, for example, the experimental use of place itself becomes a form of venture capital.

The exercising of collective intelligence in cities will increasingly depend on a hybrid mix of physical and digital networks – and the smartness of the precinct will increasingly depend on how swiftly and decisively they can respond to needs and preferences. Anton Andrews of Microsoft has studied network ecosystems closely. He identifies speed, transparency, trust and reciprocity as essential values, and cites the Chinese technology district of Shenzhen, 'the Silicon Valley of hardware', as a model of collective intelligence in achieving the fastest technology production in the world.

**KALKBREITE COOPERATIVE,  
ZURICH, SWITZERLAND**

This development – built in 2016 – is a single building as large as a city block. It holds 97 apartment units housing approximately 250 people, 5,000 square metres of commercial space, a cinema, hotel and a public courtyard – all built over a tram depot. Rents are set below market rates, despite Zurich's overheated housing market.

**WATER STREET  
TAMPA, FLORIDA, USA**

This US \$3 billion transformation of downtown Tampa will create a smart precinct set on more than 50 acres of land, giving the city its first new office towers for nearly 25 years alongside 3,500 new homes and two new hotels. Keynotes of the scheme include the relocation of the University of South Florida's college of medicine and heart foundation to the site and its bid to become the world's first WELL-certified community under the WELL Community Standard. First phase of the project will be completed in 2020.

**'CREATIVE CITIZENSHIP'**

**Smart precincts enabling people to engage and participate in new ways**

The rise of the smart precinct owes much to a consumer-driven approach in which technology is responsive to user preference – whether in the workplace, home or public realm – and convenience and ease of use are key drivers. However an alternative perspective is emerging which positions the users of the innovation precinct as 'creative citizens', not just passive consumers of smart services.

If the smart precinct is to be a thriving testbed for new knowledge and ideas, it must depend on having active participants, not compliant observers. The precinct must evolve in response to the needs and aspirations of the mix of people who work

and live there, and who together make up the identity of that community. New technologies will enable creative citizens to engage and participate in new ways, providing new forms of expression and increased agency.

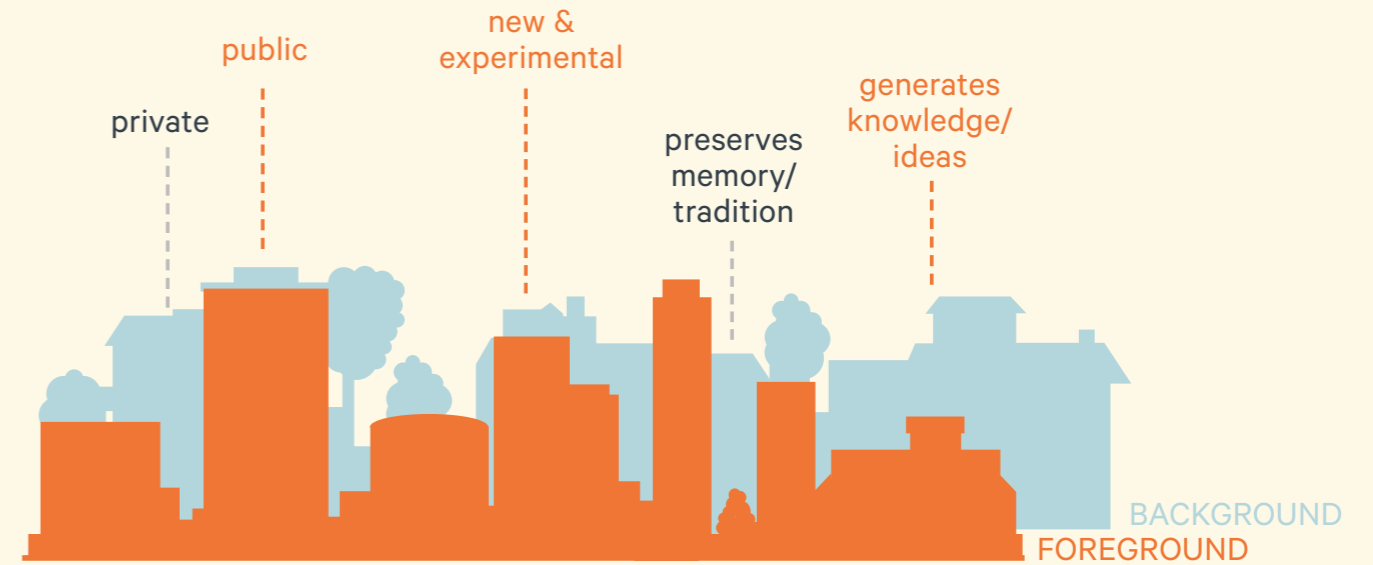
Creative citizens will use online collaborative platforms to co-design their public spaces, social networks to organise street parties, arrange tech surgeries or guerrilla gardening, and online forums and hyperlocal news to oppose things they disagree with. Technology will therefore facilitate a shift to more democratic participation in decision-making within the precinct and aid resistance to a top-down political approach.

London districts have pioneered creative citizenship in recent years. In Walthamstow, for example, locals took over a former library to create a community centre called The Mill, sharing stories from the building online

*Creative citizens will use online collaborative platforms to co-design their public spaces...*

to create new social groups and activities. In Kentish Town, residents used digital tools to overturn conventional planning and create their own Neighbourhood Plan for the area.

The most successful smart precincts will provide space and opportunities for creative citizenship to grow – and, in the process, reimagine urban life.



**'FOREGROUND-BACKGROUND'**

**Smart precincts creating a new blend of urban change and continuity**

Smart precincts can be defined and bounded in a number of ways. There is a good deal of debate around this issue and a wide range of alternatives to the workspace, retail or transport hub-led approach. What about an education-led precinct based on the university campus as the oldest smart district, for example, or a culture-led precinct such as the South Bank in London, a healthcare/life sciences precinct or an airport-based tech precinct?

There is resistance to one space use dominating a precinct. If the Intermix ideal is to be carried through then the argument goes that mixed use should be precisely that – all mixed up. A different way to view the smart precinct is not through the relative proportions of different space uses but through the lens of 'foreground-background'.

The foreground is the boulevard or 'street' – this is where the buzz is created, where culture, ideas and knowledge are generated and where services are consumed. It is noisy and public and full of social interactions. The background is where people live and learn within the precinct; it is quieter and more private, a place where memory, history, tradition and reflection are important. New technologies permeate both spheres.

The 'foreground-background' angle enables these precincts to plan places and spaces that combine loud and quiet as well as new and old elements. The aim is to retain a heritage component at the same time as introducing new technologies. This brings a new dimension to smart precinct – one that blends urban disruption with continuity – at a time when many smart precincts are being developed on old urban industrial or waterfront sites, which have special meaning for their communities.





# 05

## CHALLENGES

Our review revealed a number of key challenges that face the smart precinct:

### THE CHALLENGE OF CURATION

How smart precincts are proactively curated is a subject for debate. On one hand, some curatorial direction is considered important, especially if it involves animating public space with events, highlighting site heritage or linking residents to city and local authority services. On the other hand, precincts can become sterile if they are over-curated, a by-product of place branding rather than giving a real feel for community place making.

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*How do you curate for a perpetually unfinished city quarter, one that will change and evolve over time...?*

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One widely promoted approach is to provide strong curation at the outset, but then loosen the reins and leave opportunities for things to develop and flourish organically. Of all the principles advanced by Mirvac in its first Intermix report, the Curated Precinct proved the most contentious. This is likely to become more so as both creative citizenship and employee entitlement are enabled and emboldened by new digital tools of civic and workplace participation.

### THE CHALLENGE OF SUSTAINABILITY

In the debate about how people and technology synch in the smart precinct, much of the recent discourse has been about fostering tech-led innovation, about the talent agenda and about collaboration and new ways of working. Sustainability, the original *raison d'être* for integrating smart technologies in the built environment, especially workspace, is now simply taken as a given. It is a commonplace factor.

However, faced with global challenges such as climate change, ageing populations and a wellbeing crisis in our cities, sustainability in its broadest sense is set to regain a sense of urgency. Many smart precincts will pursue a publicly stated goal to become carbon neutral. Smart systems to monitor energy use, air and water quality will become ubiquitous. There will be growing efforts to bring the outside in through biophilic design – workplaces will feature vertical urban gardens and grow their own herbs and vegetables – and to make the outside work in all weathers for all users of the district.

Amid the technological promise of the smart precinct, nature itself will be given a big role. Conversely, eco-tech will drive the growth of green energy and advanced digital modeling techniques will be applied to planning more sustainable precincts. Property investment models will be challenged to address the green imperative behind new developments. In the long-term search for sustainability, buildings in the smart precinct could be generic and adaptable and not constructed with specific uses such as work or retail in mind.

### THE CHALLENGE OF DIVERSITY

There is a general consensus that having a diverse mix of functions, activities, people and organisations will help to activate the smart precinct. At the same time, the creation of a single digital masterplan for each new precinct to integrate digital flows of information and the principle of 'One Connected Community' tell a different story. One way to reconcile these different positions is to envision the smart precinct as 'Multiple Connected Communities'. In this scenario, seamless connectivity itself becomes a core development principle and an enabler of the more diverse district.

The smart precinct has the potential to orchestrate a blend of different cultures, ideas and communities of practice within one geographical location, but the ambition should be to respect difference and not seek to create 'one community'. In this diverse mix, the counter-pointing of the digital/global with the local/tactile within the same precinct is an emerging strategy. At ATP (Australian Technology Park) in Sydney, Mirvac is introducing artisan food production (making ice cream, butter, gin and so on) into a marketplace right alongside digital start-ups engaging with the global knowledge economy.

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*The local and tactile will coexist with the global and digital...*

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Even within a single vertical commercial building, mixing it up is important: 22 Bishopsgate, the City of London skyscraper currently under construction, will have an innovation hub for start-up plus many other amenities to encourage diversity. When Amazon put out an unprecedented call in 2017 for North American cities to bid to be the host location for Amazon HQ2, its US\$5 billion second headquarters, its specification included the requirement for a diverse population. Other criteria included strong local and regional talent — particularly in software development and related fields — and a community that thinks 'big and creatively', alongside good connectivity and transport links and a stable, business-friendly environment.

### THE CHALLENGE OF PRIVACY

The smart precinct poses a special challenge to traditional models of privacy in the urban neighbourhood. Its more fluid boundaries erode the distinctions between public, privileged and private spaces, and this situation is mirrored in the digital realm where the flow and sharing of data asks new questions of individual security and privacy. Evidence suggests that some cultures and age groups are less concerned about digital privacy than others – China, for example, prioritises ease of use over other criteria in developing its smart cities and districts. The millennial generation has a more *laissez faire* attitude compared to older cohorts in the workplace.

What is becoming clear to many experts is that, amid the blur of physical and digital realms, the boundaries between public and private in smart precincts are in flux and require good, clear governance. The idea of the precinct as an always-on, buzzy destination should be tempered by physical spaces for retreat, quietness and reflection – and by digital drop-out zones where people can have some escape and respite from the online rush and be afforded the choice to hide their data from the watching world.

### THE CHALLENGE OF TYPOLOGY

Should smart precincts be workspace-led or retail-led, or should they seek a more complex and ambitious mix of space uses, typologies and functions that defy simple characterisation? Increasingly, the expert opinion is against allowing one typology to dominate the mixed-use precinct. The real value lies in the intermix between several different functions – although there would appear to be common denominators across different innovation precincts around the world such as connectivity (with an upgraded fibre network), transport links (local, regional and international), place-making and culture. City-owned Central Business Districts (CBDs) that offer real scale and scope for reinvention are prime candidates for the most complex intermixes, as Hudson Yards in New York has demonstrated.

An 'anchor' tenant who is a major local employer (Under Armour at Baltimore's Port Covington, for example) will always drive the popular workspace-led model, onto which other typologies such as retail, hospitality and residential can be grafted. However alternative models are gaining ground. In particular, concentrations of healthcare and education expertise are becoming magnets for smart precinct development. This is not surprising as university campuses from MIT and Harvard to Cambridge's Silicon Fen provide a blueprint.

LAKE NONA, ORLANDO,  
FLORIDA, USA

Lake Nona is a new, 7,000-acre mixed-use development within the city limits of Orlando. Homes and retail are planned around a biomedical research and education hub, Lake Nona Medical City – evidence of the growing role that medical and education facilities play in smart precinct growth. The project is committed to incorporate state-of-the-art technology into every dimension of our infrastructure and aims to attract tech businesses with a focus in health sciences.

*‘Our city districts have got to become more fair, more equitable – in the age of terrorism the demands of security have eroded public space’*

**Richard Rogers – Senior Partner, Rogers Stirk Harbour + Partners: London, UK**

### THE CHALLENGE OF FAIRNESS

The final challenge for the smart precinct is perhaps the most important. How do we make these new digital urban quarters fair and equitable for all? Many experts believe that designing space to enhance fairness, access and inclusivity is a paramount consideration for smart precinct development.

Much has been written by how digital technologies can widen inequality and create division, disrupting labour and consumer markets in directions that favour some over others. There is also considerable debate over health inequalities in cities, a ‘postcode lottery’ with unequal access to essential public services.

Against this background, an essential principle of the smart precinct should be inclusive design – design for all – a generosity and openness in the public realm. This has been compromised in recent years by the global considerations of terrorism and security, which have restricted public flows through city buildings and districts. But new technologies have the potential to achieve

a new civic balance – not just in creating better access to shared public space but also in using digital tools to support more democratic, citizen-centred decision-making.

The British commentator and urban critic Charles Leadbeater has talked about how cities require a better balance between the needs of people and technical systems. He describes how high-empathy/high-system cities (and the districts within them) are a far more appealing proposition than those that lack empathy or lack efficient systems for connectivity, mobility and work.

While Asian cities have focused on hard systems, old European urban centres are currently leading the way in using creative technology to enhance the human experience of city living and working. Empathy is an under-recognised value in property development but it is a growing design consideration and will play a key role in determining which smart precincts flourish. Equally, empathy, equity and fairness can only be achieved with the right technological systems to underpin the precinct.



*Eco-tech will drive the growth of green energy and advanced digital modeling techniques will be applied to planning more sustainable precincts.*

# 06

## INTERVENTIONS – PRACTICAL ACTION

In this section, we provide a series of recommendations for key players in the smart precinct – property developers, business occupiers, technology innovators and city authorities – to respond to the emerging challenges identified in the report.

### CURATION

Developers should put in place a high degree of place curation to start things off, but loosen the reins as the precinct evolves so that it can develop organically; they should also design in passive curation through tenant mix, typology, place and culture. Business occupiers should look for evidence of smart precincts using curation to improve the employee experience and support the talent recruitment and retention agenda as part of their criteria for relocation.

Technology innovators should look at new ways to support the curated activation of the precinct – the LED façade featuring creative work by artists on the iconic Burj Khalifa building in Dubai is a good example of the potential. City authorities should support precinct curation activities through the use of community managers - and create links to wider urban cultural, tourism and inward investment programmes, so that the smart precinct supports the broader city vision.

### SUSTAINABILITY

Developers should view the smart precinct as a tech ecosystem in which sustainability is of paramount importance, and work with tech providers to provide the right solutions in this area. Business occupiers should look for evidence of smart precincts offering resource-efficient buildings and a focus on health and wellbeing as part of their criteria for relocation.

Technology innovators should look at new opportunities for green tech to enhance the eco-credentials of the smart precinct - from electric bikes and shuttle vehicles to drones that carry out maintenance tasks. City authorities should integrate smart precincts into the city plan, not seeing them as isolated business parks but as key joined-up pieces in building a more sustainable city.

### DIVERSITY

Developers should take a design approach that actively encourages greater diversity within the precinct and avoid creating a masterplan for the smart precinct that is too homogenous. Business occupiers should seek out places that will provide more diversity for their employees, leading to fresh ideas and encounters.

Technology innovators should lever the use of location-aware systems, workplace apps, data analytics and other emerging technologies to engineer serendipitous encounters in the diverse precinct. City authorities should take steps to advance planning policies that support a more diverse mix of uses and people, and stop polarisation.

### PRIVACY

Developers should avoid a Big Brother approach to data and surveillance and be more aware of the individual's privacy needs; this will entail balancing the transparent, connected precinct of open source data with a robust approach to data security. Business occupiers should put in place the right data protection policies so their employees can enjoy the benefit of the smart precinct without having their privacy rights compromised.

Technology innovators should respect 'a new bargain' in which they don't simply suck all data out of the precinct but share through open platforms and systems, respecting local needs and preferences. City authorities should use the data opportunities of the smart precinct to promote e-citizenship, joining up healthcare, real-time travel and other public service information.

### TPOLOGY

Developers should depart from a traditional approach and build their masterplanning around a mix of people, activities and experiences. This will make such exercises less formulaic. Business occupiers should look for places where their staff can also shop and eat and access other social amenities, while balancing the need for community and camaraderie within the workplace itself.

Technology innovators should look to position tech services as the fourth utility – after gas, water and electricity – that can work across any typology in the smart precinct plan. Tech infrastructure should not be an afterthought. City authorities should relax planning and zoning rules to encourage a mix of typologies, allowing spaces to share and morph within the precinct.

### FAIRNESS

Developers should seek to avoid polarisation in how people use the precinct, balancing the needs of access with the needs of security against terrorism. Business occupiers should look for evidence of smart precincts giving all their people an empathic experience as part of their criteria for relocation.

Technology innovators should look at new ways to support creative citizenship and work-life blend, building on the Quantified Self movement to give people more control over their lives through technology. City authorities should work with partners that promote inclusive design and urban fairness, using the inclusive precinct as a beacon for a wider city vision.

# 07

## INTERMIX IN ACTION: ATP SYDNEY

In our first Intermix report, we identified and described several ingredients to activate a smart precinct. Mirvac has applied these principles to one of its own projects – ATP (Australian Technology Park) in the Sydney suburb of Eveleigh, a development that aims to create an advanced, workspace-led innovation district for the tech economy by 2020.

### UNDERSTANDING THE TECH ECOSYSTEM

Mirvac undertook research into tech ecosystems, to increase our understanding of what is needed to make them successful. At the time of purchasing ATP, Mirvac committed to:

- Share knowledge and support innovation to promote and develop the technology precinct as a major employment centre
- Develop a thriving creative and digital community
- Establish a collaborative network with other technology stakeholders to improve the business environment
- Remove the barriers to entry for tech start-ups
- Sustain a long-term, viable technology precinct
- Gain an advantage for the technology precinct in an increasingly competitive global market
- Foster innovation and tech start-ups in the technology precinct
- Develop platforms to showcase and support the technology precinct



Our aim was to develop a technology ecosystem that positions Sydney - and Australia - as a global leader, with the right balance of occupants, good human-to-human interaction, fluid international connectivity, diverse and flexible spaces, easy access to customers and a strong identity so the community can feel a sense of pride and belonging.

<p><b>AUSTRALIAN TECHNOLOGY PARK</b></p> <p><b>PLACE MANIFESTO</b></p>	<p>1</p> <p><b>CREATE COMMON WEALTH</b></p> <p>ATP is for everyone. We will invite all people in, designing and programming a generous, inclusive and permeable place for all to use.</p>	<p>2</p> <p><b>EVERYTHING CONNECTS</b></p> <p>ATP will take its central place in the city through connections that are physical, digital, cultural and social.</p>	<p>3</p> <p><b>BIG PICTURE THINKING</b></p> <p>ATP is an opportunity to inspire great urban renewal, leading by example with positive, community-minded urban change.</p>
<p>4</p> <p><b>HUMAN SCALE</b></p> <p>ATP will be part of the neighbourhood by creating fine-grain places, spaces and experiences for all.</p>	<p>5</p> <p><b>BE OF THE PAST</b></p> <p>ATP will embrace its heritage as a place with great productivity in its DNA.</p>	<p>6</p> <p><b>BE FOR THE FUTURE</b></p> <p>ATP will accommodate the future by innovating, thinking progressively, building flexibly and sculpting for the long term.</p>	<p><b>UPGRADING THE AUSTRALIAN TECHNOLOGY PARK INTO A MODERN ICON OF INNOVATION, PRODUCTIVITY, RETAIL AND COMMUNITY – SERVING WORKERS, LOCALS AND VISITORS ALIKE.</b></p>

This is how we have applied the eight Intermix principles at ATP:

### ONE CONNECTED COMMUNITY

At ATP, Mirvac undertook to predict the future state of the smart precinct, setting out anticipated user experiences, then reverse engineering this to establish the technical infrastructure needed. We have concentrated on creating a network that will allow people to stay connected and transition seamlessly through the precinct. It is also our intention to develop a living lab approach, opening up data for the community to use to test new ideas and build new businesses.

### FLEXIBLE SPACE MATTERS

Flexible space is not only about size and scale but about adaptability, connectedness, affordability and convenient amenity. There is a need to create diverse and flexible spaces which support key experiences. Mirvac has created a new flexible space venture called Hoist, which provides curated space where customers and entrepreneurs can come together to solve customer problems. Flexible space at ATP will include essential services such as mentoring and access to finance, which will increase the chance of success and also help to retain entrepreneurial new companies within Australia.

### SHAPING THE SHARING ECONOMY

At ATP, several spaces have been created enable the sharing economy to develop – from Uber collection and drop off points to an innovation precinct to enable shared learning to take place. A services marketplace will provide those key business services required by start-ups and small businesses on a share basis to ensure that businesses can grow. A rooftop farm is also being created to educate people on health food, permaculture and how to grow it locally.

### MAKERSPACE CULTURE

Through our work at Hoist it has become apparent there is a desperate shortage of makerspace in Australia. The equipment cost is high and usage minimal so difficult for a start-up to justify. Mirvac is working with a tech makerspace provider to deliver a space at ATP with memberships for start-ups and scale-ups. Idea prototyping and experimenting is a need for many start up businesses but they cannot afford to go it alone.

### FLUID BOUNDARIES AND FLOW

An intermingling of functions and forms will help to activate the community at ATP. The park will include a heritage trail with on-site blacksmith and farm to bring the historical context of the place to life using a mix of physical and digital experience. A retail boulevard and marketplace focused on manufacturing retail will be explored, very much staying true to the theme of a makerspace.

### WELLBEING DIVIDEND

At ATP we have set out a wellness precinct with flora and fauna, outdoor gym and skate park accessible to the broader community. The precinct will also include massage and yoga studios alongside medical health suites to provide the full wellbeing dividend, all accessed through a digital booking system. The precinct will also include the first ever rooftop farm in Australia providing access to locally grown produce. This space will also provide an opportunity to educate people on how to 'grow your own'. Sensors will monitor food production and yield whilst providing real-time data for the community to mine.

### THE CURATED PRECINCT

An activation programme has been developed for the precinct during construction. A key thought is that the final design provides space and infrastructure for ongoing events ranging from food trucks and market stalls to local arts and crafts. A new pavilion will be created by an artist to provide a gathering place, with larger events set to take place in the oval and new public plaza.

### DESTINATION, NOT DEAD ZONE

A new place-making masterplan has helped to create a variety of reasons to visit ATP and importantly keep coming back. A new retail marketplace will provide a new level of amenity at ATP, one that will draw people in from outside the local community, whilst providing access to a variety of food and beverage priced for all users of the precinct.



*ATP have concentrated on creating a network that will allow people to stay connected and transition seamlessly through the precinct*

## APPENDIX: EXPERT INTERVIEWS

Matthew Claudel – Innovation Scholar,  
MIT Lab for Innovation Science and Policy:  
Massachusetts, USA

Ken Greenberg – Principle, Greenberg  
Consultants Inc: Toronto, Canada

Sadie Morgan – Director,  
DrMM architects: London, UK

Melissa Marsh – Founder and Executive  
Director, Plastarc Inc: New York, USA

Charles Leadbeater – Independent author,  
advisor and speaker: London, UK

Gordon Feller – Founder, Meetings of the  
Mind.org: San Francisco, USA

Dr Tarsha Finney – Programme Lead City  
Design, Royal College of Art: London, UK

Richard Rogers – Senior Partner, Rogers  
Stirk Harbour + Partners: London, UK

Ivan Harbour - Senior Partner, Rogers  
Stirk Harbour + Partners: London, UK

Tim Stonor – Managing Director,  
Space Syntax: London, UK

Edigio Zarrella – Client and Innovation  
Partner, KPMG: Hong Kong, China

Andrew Albright – Client Strategist of  
Connected Communities, Intersection  
Co: New York, USA

David Gilford – Senior Director of Client  
Strategy, Intersection Co: New York, USA

Campbell Hanan – Head of Office and  
Industrial, Mirvac: Sydney, Australia

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