Places with purpose

Defining the urban scale and

form of innovation clusters

Hassell

Places with purpose

Contents

Image: EcoSciences Precinct, Brisbane, Australia.
Photography by Christopher Frederick Jones

PLACES WITH PURPOSE

The word 'innovation' is vague, but inherently positive. As a result, it's ubiquitous, particularly in strategies for urban planning and prosperity. But if cities are the innovation centres of our economies (and all the evidence points to that), then the physical environment that entrepreneurs, researchers and visionaries inhabit is a vital factor in making all those good ideas come to life.

To deliver the lofty aspirations of business and political leaders to tackle global challenges like climate change, resource scarcity and, most recently, pandemics, we need to create great places for big thinkers to come together – literally.

Herston Quarter, Brisbane, Australia.
Image by Hassell

OUR FOCUS ON PHYSICAL ASSETS

What's in a name?

Hub, neighbourhood, precinct, district, hotspot, cluster. So many names, so many definitions. For this paper, we have settled on 'cluster' as a general catch-all, but we don't want terminology to get in the way. What we want is an understanding of how bringing organisations close together can bring about transformative ideas.

Innovation ecosystem

The Brookings Institution, a world leader in the theory and practice of innovation precincts (as they call them) identifies three assets – economic, networking and physical – that provide the supporting ecosystem for the generation and commercialisation of new and important ideas.[1]

→ Economic assets are the firms, institutions and organisations that derive, cultivate or support an innovation-rich environment.

→ Physical assets are the public and privately owned spaces – buildings, parks, streets and other infrastructure – designed and organised to stimulate new and higher levels of connectivity, collaboration and innovation.

→ Networking assets are the relationships between actors – such as individuals, firms and institutions – that have the potential to generate, sharpen and accelerate ideas.

As Wagner and Watch so eloquently put it, "innovation spaces are physical manifestations of broader economic, cultural and demographic forces, elevating what matters in today's economy." [2]

We want to elevate what matters in today's city spaces. Our focus is firmly on the physical assets because that's where designers can make real change.

Anchor, plus good design

The most common model of innovation cluster uses an anchor around which other activities can develop. That anchor is often a university or hospital (both in many cases), or a large company. This provides a stable population of workers and an ongoing imperative for activity. But an anchor alone isn't enough.

A vibrant cluster that attracts talent and investment needs more than a big workplace. It needs services, retail, amenities, transport, open space, a coherent identity, and, crucially, critical mass to bring enough different agents together to enable the activities that innovation requires.

Context is crucial. What might be suitable for a creative arts community is not necessarily beneficial for a scientific research community. While there may be overlap on certain needs, there are fundamental differences in the urban patterns they foster.
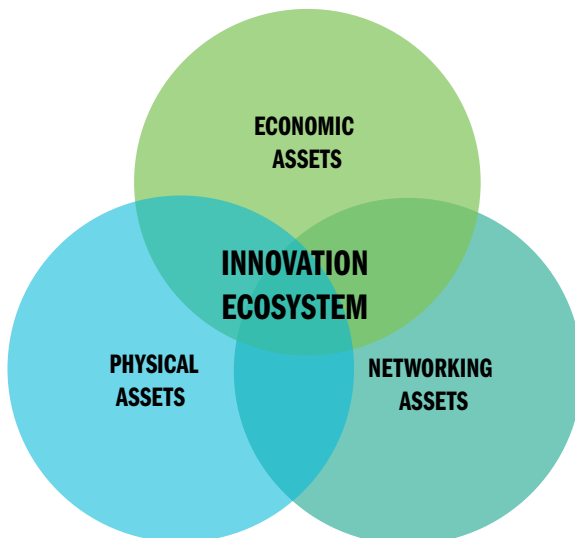

Figure 01. Innovation ecosystems
Adapted from Brookings Institution[1]

We want to elevate what matters in today's city spaces. Our focus is on physical assets, because that's where designers can make real change.

IT'S A MATTER OF SCALE

Three forms of cluster

Agglomeration (the clustering of organisations and businesses in related industries) is an effective driver of economic development, providing competition, critical mass for specialisation, and reduced costs due to proximity.[3]

By any of the many definitions, a precinct is not a single building, although it may be the catalyst for a precinct to develop (more on that later).

Broadly speaking there are three types of urban form where innovation clusters can be established or organically develop – the small neighbourhood, the medium precinct and the large district.

These labels relate to scale most obviously, but also help define the atmosphere, work cultures, industry focus, investment approaches and development types within the precincts (Figure 2).

At the top of the food chain is the Innovation City, which brings together a number of neighbourhoods, campuses and districts successfully enough to rank among the top idea producing urban environments in the world. According to the Innovation Cities Index[4] the current top five Innovation Cities are Tokyo, London, San Francisco, New York and Los Angeles – all very large urban centres with sophisticated and well-established networks of economic, networking and physical assets.
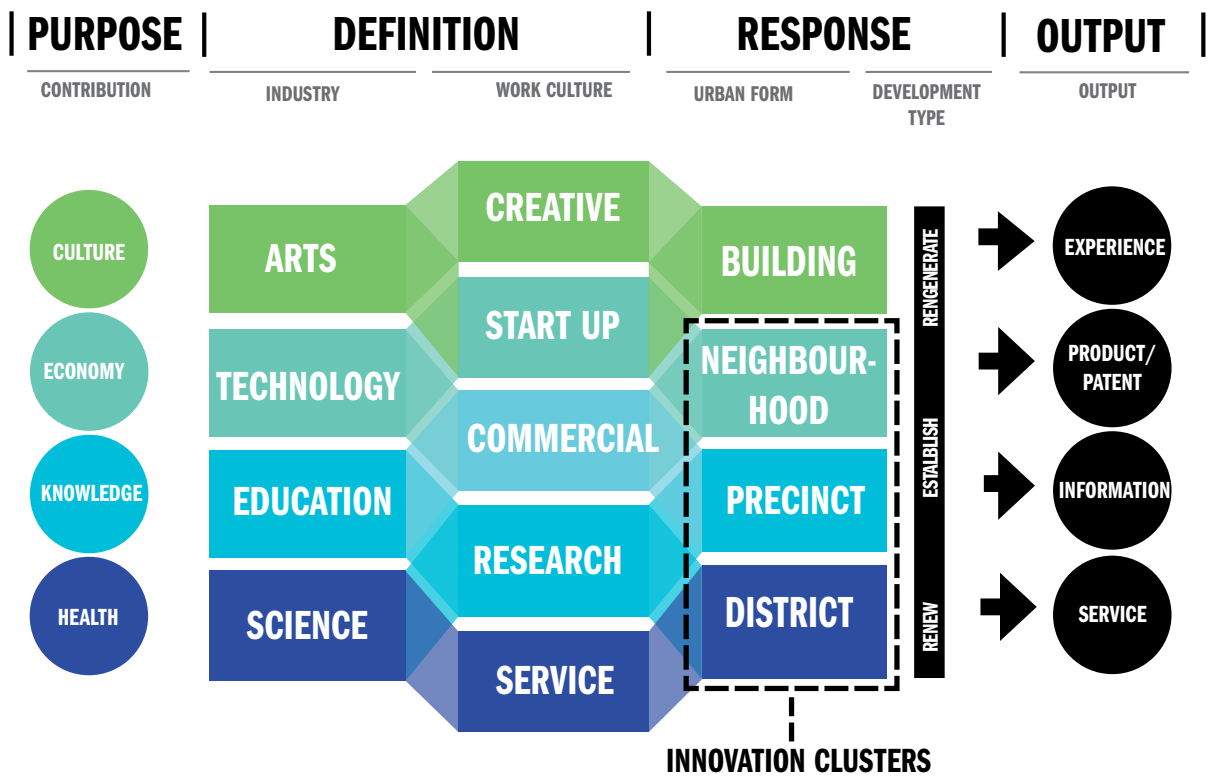
PURPOSE	DEFINITION		RESPONSE		OUTPUT
CONTRIBUTION	INDUSTRY	WORK CULTURE	URBAN FORM	DEVELOPMENT TYPE	OUTPUT

CULTURE	ARTS	CREATIVE	BUILDING	RENGENERATE → EXPERIENCE
ECONOMY	TECHNOLOGY	START UP	NEIGHBOUR-HOOD	→ PRODUCT/PATENT
KNOWLEDGE	EDUCATION	COMMERCIAL	PRECINCT	ESTABLISH → INFORMATION
HEALTH	SCIENCE	RESEARCH	DISTRICT	RENEW → SERVICE
		SERVICE		

INNOVATION CLUSTERS

Figure 2. Innovation clusters: From purpose to output
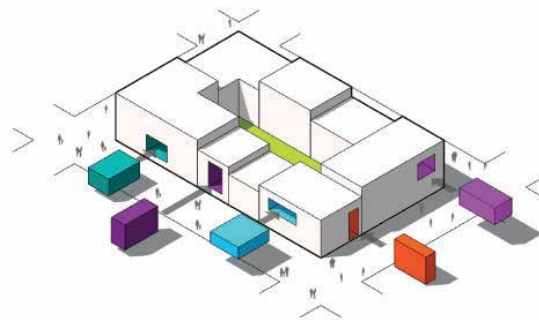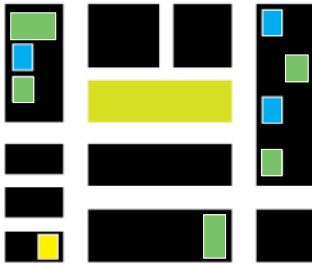
Defining parameters

The first step in any design response is to define the parameters. What industry will the innovation precinct focus on? What type of culture will it foster? What location and urban form will it take? What larger purpose will the precinct serve – cultural, economic or medical needs? And what outputs will the activity within it produce?

The three scales of urban environment relate to not only physical size, but also the type of investment for developing a cluster (Figure 3). That is, whether it is:
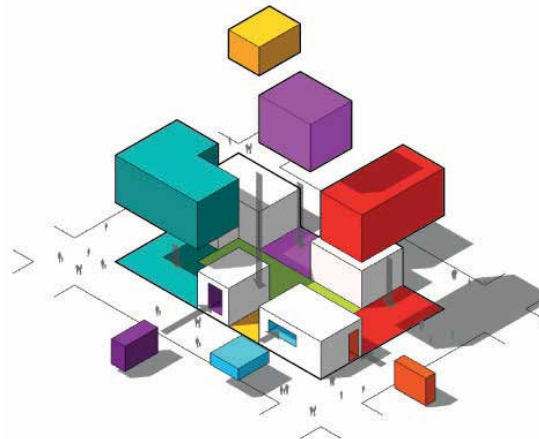
→   a grassroots private intervention in an existing neighbourhood (regeneration)
→   a government directed and publicly funded green field site (establish)
→   or something in between (renew).

Each size and development approach brings inherent opportunities and challenges. The following chapters detail these through examples of innovation clusters from around the world.
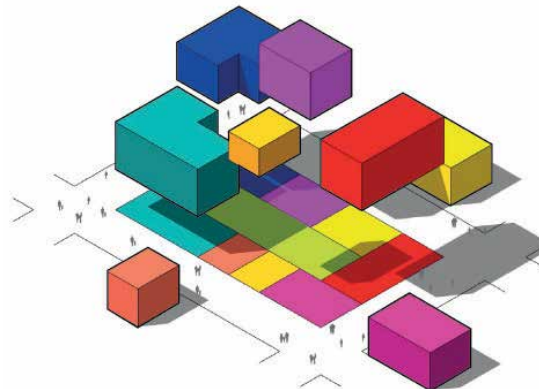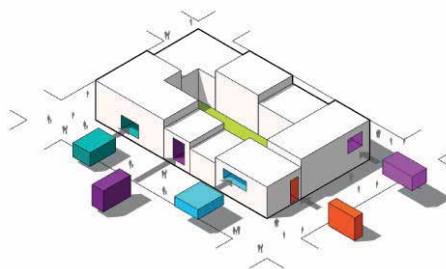
Regenerate

Renew

Establish

Figure 3. Development and investment models

SMALL-SCALE NEIGHBOURHOODS

Regeneration

At the neighbourhood scale, a small innovation economy can organically grow within an established mixed-use area, and retain a residential population and local community atmosphere. These are primarily private sector or entrepreneur-led insertions into one or a small number of existing buildings that typically have local historic or aesthetic significance. These types of clusters are common in urban regeneration initiatives.

Opportunities

→ Integrated in an existing area
→ Usually lower cost properties and other investment costs
→ Many existing amenities to support new businesses
→ Value uplift as popularity of area grows
→ Usually well served by public transport and water/electricity infrastructure

Challenges

→ Typically in blighted areas with safety concerns
→ Connecting with, and support of, existing residents
→ Area identity still forming

M50 Creative Park Shanghai, China

50 Mogonshan Road, nicknamed M50 by locals, is a contemporary art district five kilometres from central Shanghai. The now internationally recognised neighbourhood grew from a small band of local artists taking low rent space in a disused textile factory complex in the 1990s.
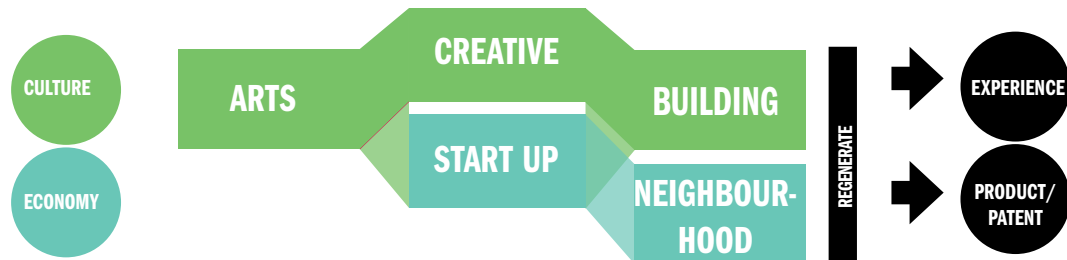
In a familiar tale to many small but successful grassroots innovation clusters, the local municipal government stepped in to designate the neighbourhood a Creative Industry Cluster in 2004.[5]

The industrial zone has regenerated over two decades[6] and now occupies 25 buildings that host over 130 artists and galleries, and research spaces in fashion, graphic design, film production and environmental art from 17 countries, as well as domestic provinces.

Shangtex, the state-owned textile group that operated the factory, still markets M50 products as well as the neighbourhood itself.

From humble artistic beginnings, the neighbourhood has become a cultural destination.

It is an economic flagship of creativity and an incubator of artistic talent with targeted programs including the M50 Design Federation, the Wuling Young Painters Studio and the M50 Creative Young Talents Contest. Rising rents and tourism have affected the community atmosphere. Like all innovation districts, M50 faces ongoing change and the challenge of retaining a strong identity whilst growing in size and economic output.[7]

CULTURE · ECONOMY · ARTS · CREATIVE · START UP · BUILDING · NEIGHBOUR-HOOD · REGENERATE → EXPERIENCE · PRODUCT/PATENT

50 Mogonshan Road, Shanghai, China
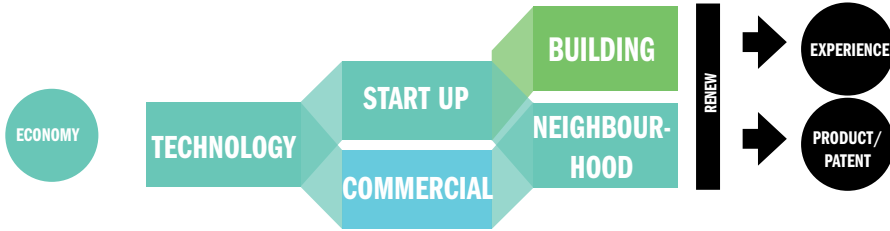Photography by Hinok Cai

Borough, London, UK

At the smallest of scales, individual investments in buildings and local communities have the potential to catalyse an innovation cluster.

Like many co-working destinations, Fora Borough in South London, designed by Hassell, has a strong connection to the surrounding neighbourhood. On the ground floor a welcoming restaurant and cafe open to the public encourage interaction not just between Fora users but also those working or living locally.

The space has largely attracted up-and-coming professionals in tech and finance, and is located close to The Ministry's co-working space for emerging talent. Together, they have the potential to expand the neighbourhood's social capital and sew the seeds from which an innovation cluster can grow.

Image this page and facing: Fora Borough, London, UK. Photography by Mark Cocksedge

Tech City, East London, UK

In the same city, but many more years and investments into development, Tech City began organically as a small cluster of web businesses around the low-rent Old Street Roundabout in 2008.
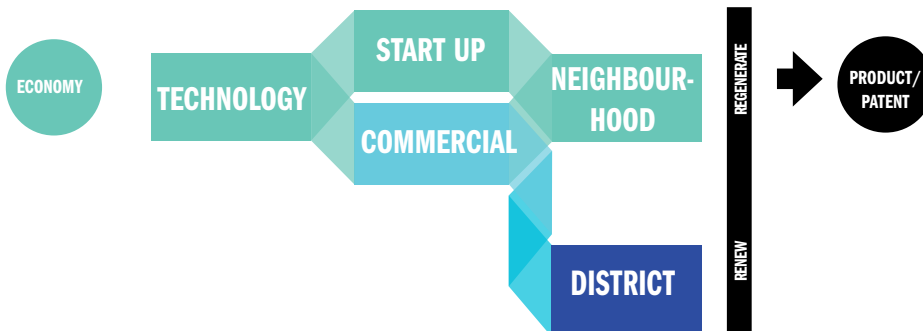
As the Global Financial Crisis of that year struck, the entrepreneur talent pool grew in Shoreditch as the financial district of London shed workers.[8]

Reflecting a common trend in innovation clusters, as the number of start ups grew, local and national governments began to support the cluster, including via a national funding mechanism in 2010.

By 2015 there were about 4,500 tech firms located in the area,[9] including some of the big ones – Amazon and Google.

The precinct is characterised by industrial-era London brick architecture and a high population density, which ensures diverse activities and services to attract budding tech talent.

In recent years the 'hipster' dominated area has attracted criticism due to exponential rent increases and a corresponding decrease in the number of start-ups attracted to the area. With many tech districts developing in the UK and Europe, Silicon Roundabout may be a victim of its own success.[10,11]

Places with purpose
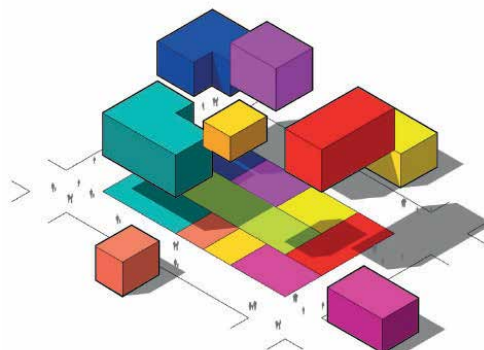
MEDIUM-SCALE PRECINCTS

Establish

Precincts are zoned areas such as business parks, corporate or university campuses and other land parcels that are officially designated for a particular research or industry function. Sometimes these grow organically, but are more likely to be newly established with a strong anchor tenant. Typically these do not integrate around existing assets. Instead amenities and support services are created to bolster an innovation cluster. Precincts like these are created to provide specialist services that require specific building types.

Opportunities

→ Lower land costs
→ Purpose-built innovation area
→ Development location efficiencies
→ Optimised built form for type of use (fit for purpose)
→ Possible government/planning incentives

Challenges

→ Higher initial capital investment
→ Infrastructure and supporting amenities required
→ Potential lack of transport
→ Greater coordination or a development authority required

GSK Asia House, Singapore
Photography by Peter Bennetts

One North, Singapore

With no natural resources to speak of, Singapore has cleverly relied on its human capital to build an economy based on business and innovation.

The Singaporean government launched the One North innovation precinct to enhance the already strong sectors of bioscience, media and communications technology.

The 182 hectare development is adjacent to an existing innovation cluster that includes a tertiary hospital, two university campuses and three science parks.
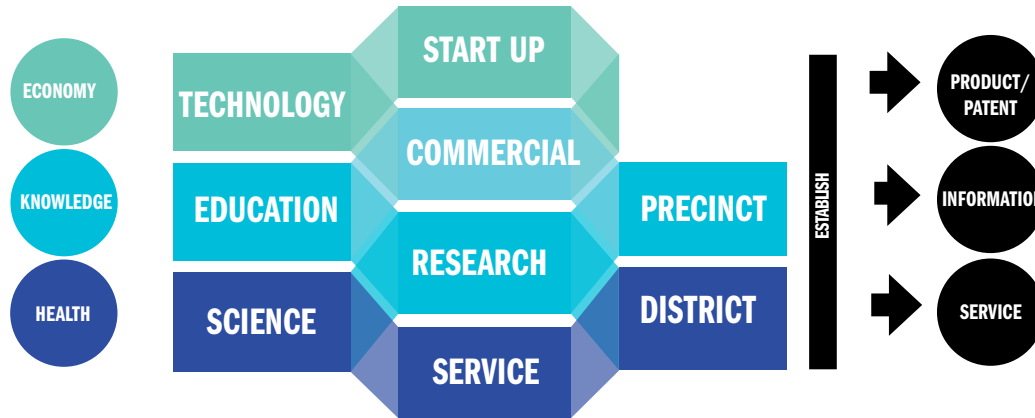
Started in 2002, the initial phase was a simple incubator for start ups. Since then it has grown to include a series of zones in three distinct themes: Biomedicine, Computing and Media. Biopolis houses biomedical research institutes and companies. Fusionopolis is a 24 storey creative exchange space for computing and creative industries, and Mediapolis dedicates 190,000 square metres of floor space to media facilities and studios.

The precinct houses 400 companies and global institutions, six higher education and corporate universities, and 50 incubators. That adds up to a working population of about 50,000.[12]

With early involvement from the master developer, the One North development agency experimented with planning guidelines. Many urban planning ideas prototyped there have been taken as reference in subsequent projects in Singapore.

One North has also been an experimental site for new ideas: a pilot zone for autonomous vehicle trials since 2016 and Singapore's first drone estate in 2018.[12]

Firmly established as a government intervention, the original precinct is now catalysing more private investment around the precinct that includes GSK Asia House, designed by Hassell.

50
incubators

50K
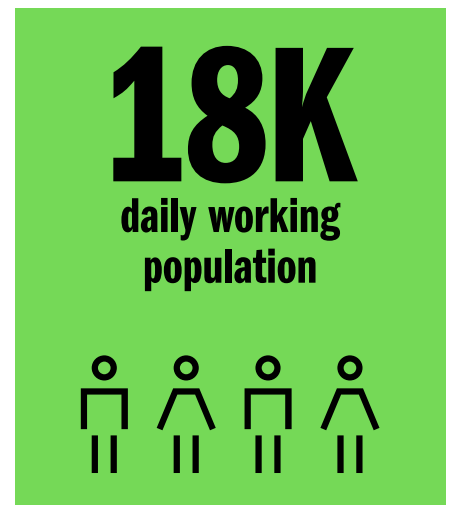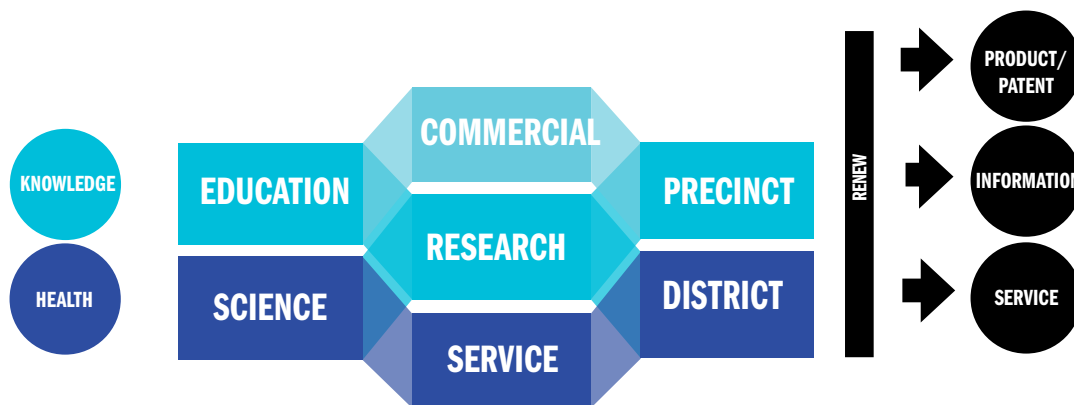daily working population

Herston Quarter, Brisbane, Australia

The $AUD1 billion redevelopment of Herston Quarter is set to be a catalyst for health and research innovation in Brisbane.

The precinct's master plan – with Hassell as lead designer – combines healthcare, education, housing, retail, recreation and community spaces in one place with interaction and innovation at its core.

Under the redevelopment plan, iconic heritage buildings will also be renewed and adapted, giving the existing health and knowledge hub more room to grow and diversify to meet the future needs of the city.

The precinct will draw thousands of people each day to its hospital and aged care services, medical education, research facilities, residential communities, retail areas and student housing. By 2027, it's predicted to be the size of a small town, with more than 18,000 daily visitors..

This private development of public infrastructure adjacent to existing health and research facilities is seeking to make the most of Herston's strategically important urban site, balancing layers of old and new, work and life, growth areas and green space.

KNOWLEDGE
HEALTH
EDUCATION
COMMERCIAL
RESEARCH
SERVICE
SCIENCE
PRECINCT
DISTRICT
RENEW
PRODUCT/PATENT
INFORMATION
SERVICE

18K
daily working population

Herston Quarter, Brisbane, Australia
image by Hassell
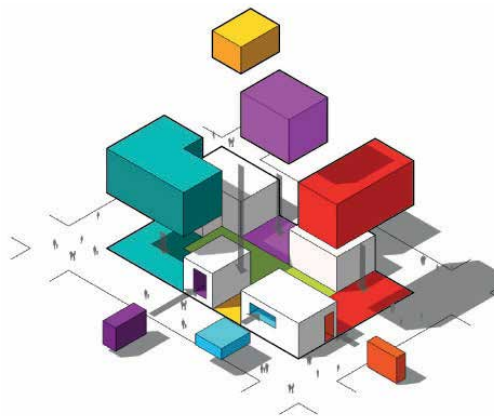
LARGE-SCALE DISTRICTS AND BEYOND

Renewal

Innovation districts are larger than neighbourhoods and precincts, and can be designated by government or institutional agencies to stimulate the renewal or expansion of an existing area or suburb. This type of innovation cluster is often planned and administered by a combination of bottom-up and top-down agents. Because of their size and economic development potential, these areas attract greater investment and government support, and have larger or more outputs.

Opportunities

→ Value and identity of established area
→ Zoning and planning intent typically aligned
→ Established momentum, allowing lower risk on return
→ Retains elements of existing activity, amenity and buildings, which enhances talent attraction and supports new investment
→ Usually well serviced by public transport and water/electric infrastructure

Challenges

→ Potential displacement of existing residents
→ Pricing out of area due to higher land values and rental/leasing costs

Life Sciences Precinct, The University of Melbourne, Australia
Photography by Earl Carter

Melbourne Biomedical Precinct, Melbourne, Australia

Sitting somewhere between a precinct and the next scale up, a district, the Melbourne Biomedical Precinct has a strong and long history of education, research and clinical care. The precinct is situated two kilometres from central Melbourne in the suburb of Parkville.

Rated as one of the world's most liveable cities,[13] Melbourne's culture and lifestyle play a key role in attracting and retaining world-class talent – the backbone of any innovation cluster.
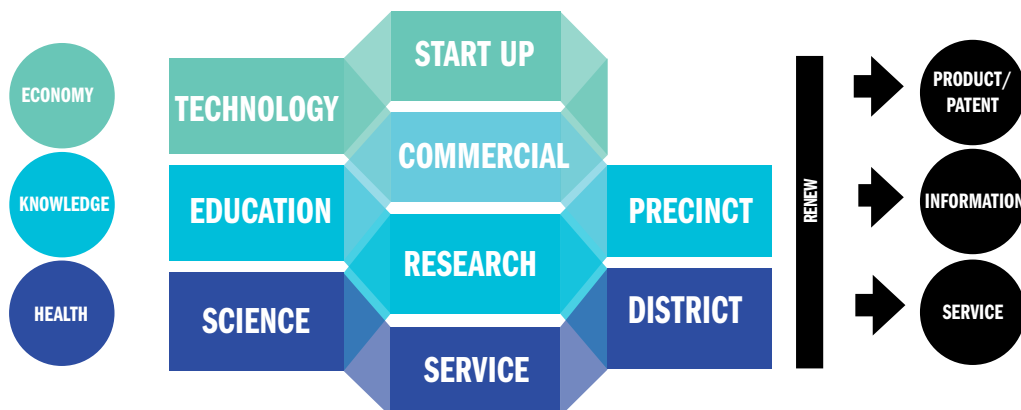
Parkville boasts an established residential population in historic Victorian-era brick terraces, excellent public transport, open space, retail, and diverse food and beverage offerings.

The biomedical history of the suburb stretches back to the 1850s, when the Royal Melbourne Hospital and The University of Melbourne opened

Around these two anchors, Australia's pre-eminent biomedical innovation precinct has flourished. It houses Australia's largest pharmaceutical company (CSL) and over 30 hospitals, research institutes and biomedical businesses.[14]

This agglomeration of organisations attracts more annual competitive biomedical research funding than any other precinct in Australia. Designated a National Employment and Innovation Cluster by the state government,[15] Parkville is a critical economic driver for Victoria, with a current focus to better commercialise its world-class research.

One of the most recent developments in the precinct is the University's Life Sciences Building, designed by Hassell. This new investment brings three science faculties together, creating an innovation cluster within an innovation cluster.

Silicon Valley, California, US

Silicon Valley is the district that became a region. At 4,801 square kilometres, 3.1 million people and 1.6 million jobs,[16] this is a series of campuses and districts that has grown to become the world's best known innovation cluster.

As home to some of the largest and most profitable companies in the world, the Valley has become synonymous with innovation and disruptive technology.

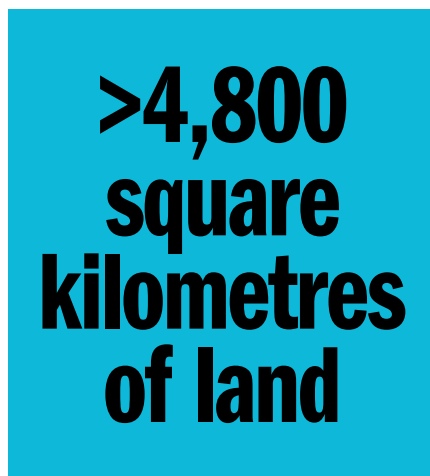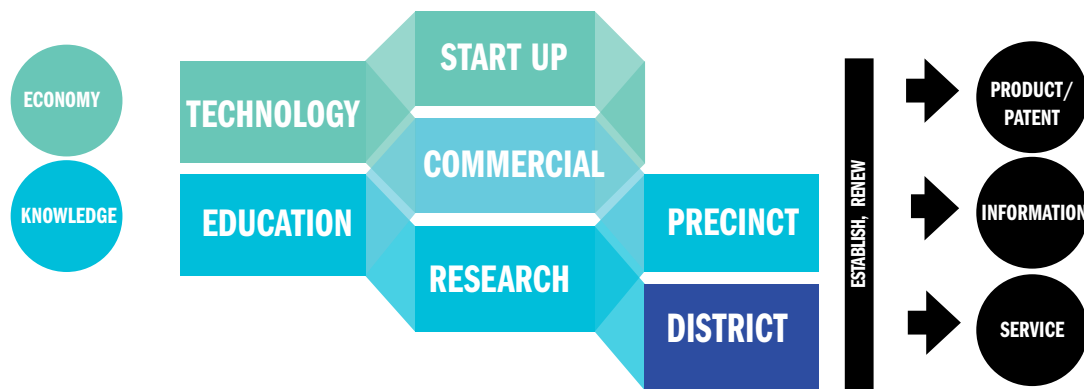Anchored initially by a university but since augmented by technology mega-companies, the Santa Clara Valley became known as Silicon Valley in 1971, decades after it established its innovation credentials in the engineering faculty of Stanford University.[17] Engineering ideas from and for major companies (including the silicon chip) were followed by venture capital, producing a virtuous cycle of innovation and investment that continues today.

The region now includes all of Santa Clara County, San Mateo County, the cities of Fremont, Newark, Union City, and Scotts Valley.

Typified by low-density living, the more urbanised areas of the Valley (stretching all the way to San Francisco) are increasingly supporting the growing population of start-ups and expanding businesses. That brings acute local political challenges: affordable housing, community displacement, land prices and traffic.
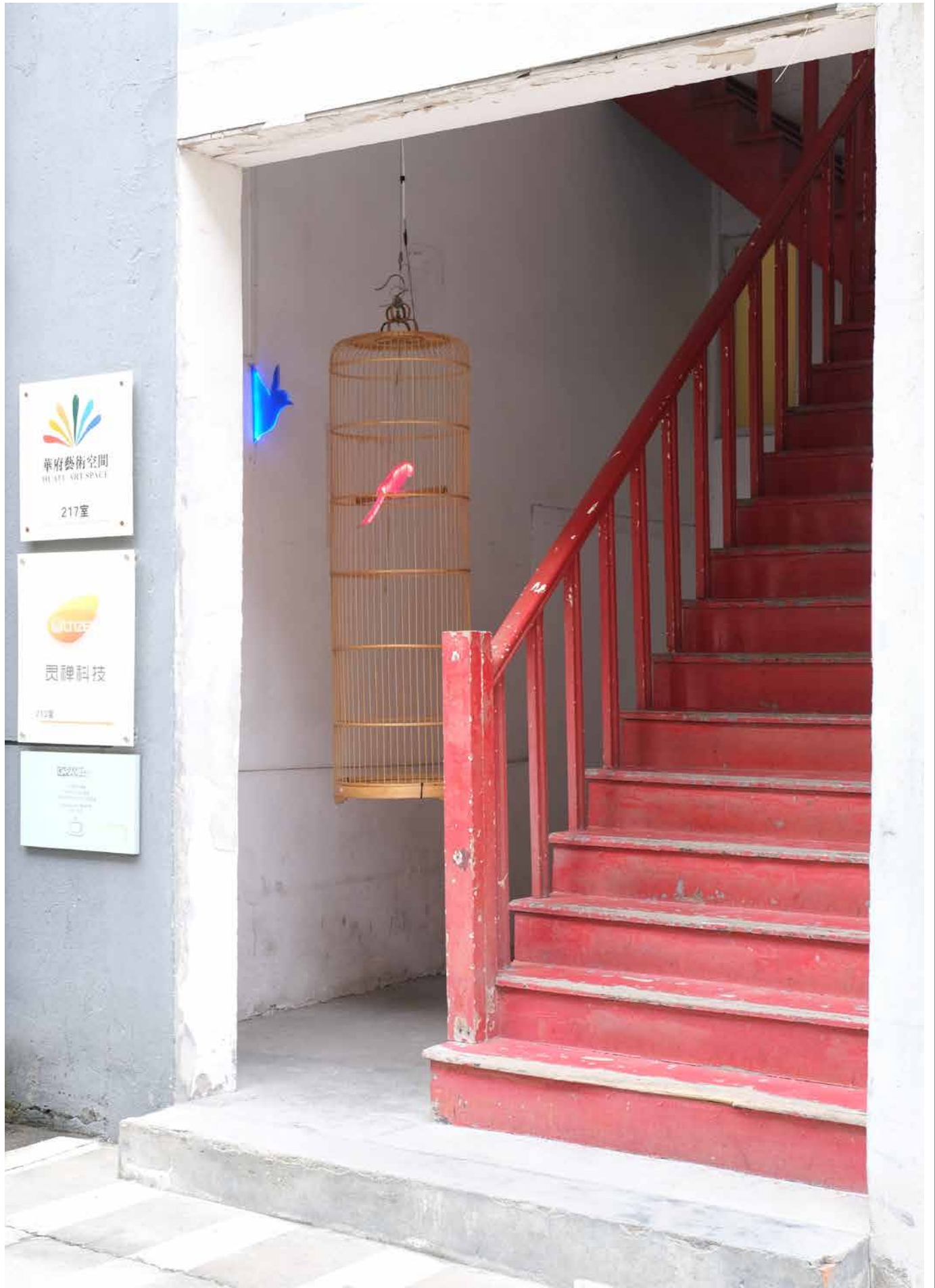
Big companies like Google and Facebook are actively addressing these issues through cooperative housing developments, employee travel initiatives and other urban design interventions.[18] But the availability of land ensures a continual supply of new companies, and more recently, larger and more grand architectural statements within the suburban landscape.

ECONOMY
KNOWLEDGE

TECHNOLOGY
EDUCATION

START UP
COMMERCIAL
RESEARCH

PRECINCT
DISTRICT

ESTABLISH, RENEW

PRODUCT/ PATENT
INFORMATION
SERVICE

3.2M
people

>4,800 square kilometres of land

1.6M
jobs

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Images:
50 Mogonshan Road, Shanghai, China
Photography by Hinok Cai

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