



EICS

TRANSFORMING MELBOURNE
AND VICTORIA WITH EMPLOYMENT
AND INNOVATION CLUSTERS (EICS)

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**“THE FUTURE IS
ALREADY HERE —
IT’S JUST NOT
EVENLY DISTRIBUTED.”**

WILLIAM GIBSON, 2014 (WRITER, ESSAYIST AND CREATOR
OF THE CYBERPUNK LITERATURE GENRE)

MELBOURNE'S GROWTH AND THE ROLE OF VICTORIA'S EMPLOYMENT AND INNOVATION CLUSTERS

Embracing the 4th Industrial Revolution

Melbourne is embarking on a period of unprecedented growth, with the population projected to rise to eight million by 2050.¹ As a result, the city is on the cusp of significant changes to its urban form that will either set the city up for continued success as one of the world's most-liveable cities, or result in a weakening of its competitive advantage and in the quality of life that residents enjoy.

As world cities scramble to respond to a period of rapid technological disruption

brought on by the much-discussed '4th Industrial Revolution', Melbourne must ensure that it capitalises on the opportunities this new era of change presents. How do we establish a clear vision for the city which sets a new benchmark for innovation, and enables us to compete with the world's global powerhouses?

We believe that Employment and Innovation Clusters (EICs) will be key to fostering a successful, growing economy founded on innovation. The Victorian government's National Employment and

Innovation Clusters, set out in *Plan Melbourne* provide a sound basis from which we have developed this concept. As physical spaces that bring together new, high-value businesses, researchers and related service providers, integrating EICs into the city's urban form will drive the next wave of jobs for Melburnians, while attracting investment and underpinning the overall competitiveness of the economy.

01

"WE MUST DEVELOP A COMPREHENSIVE AND GLOBALLY SHARED VIEW OF HOW TECHNOLOGY IS AFFECTING OUR LIVES AND RESHAPING OUR ECONOMIC, SOCIAL, CULTURAL, AND HUMAN ENVIRONMENTS. THERE HAS NEVER BEEN A TIME OF GREATER PROMISE, OR GREATER PERIL."

KLAUS SCHWAB, 2017 (FOUNDER AND EXECUTIVE CHAIRMAN, WORLD ECONOMIC FORUM)

WHY THE FOCUS ON EICs?

An EIC increases the stock of knowledge that a city creates. Meanwhile an EIC can also help to commercialise this knowledge and create new products and services that benefit business while creating jobs, increasing tax revenues and spreading the benefits of a high standard of living to the broader community. Ultimately, an innovation cluster should be the catalyst for developing an innovation ecosystem, which is characterised by a suitable mixture of economic assets, physical assets and networking assets. Indeed, “Innovation districts reach their potential when all three types of assets, combined with a supportive, risk-taking culture, are fully developed, creating an innovation ecosystem.”²

Silicon Valley is the best-known and most-successful example of an innovation cluster. However, new opportunities in digital communication and disruptive technologies have meant that the once-iconic centre of the technology era is not the only place attracting significant venture capital. New York, London and Los Angeles have all set up innovation clusters that are far more agile and integrated with the broader city than Silicon Valley. Another example is the knowledge-rich agglomeration of leading universities and startups inhabiting Boston. While it would take quite a leap for Melbourne to become the next Boston or Silicon Valley, our city has great potential to increase its knowledge-intensive economy and create significant numbers of new, high-paying jobs that accompany it.

“VICTORIA HAS A WIDE DISTRIBUTION OF FIRMS AT ALL STAGES OF DEVELOPMENT, AND IS WELL PLACED TO TRANSFORM STARTUPS INTO HIGH GROWTH FIRMS AND ECONOMIC OUTPUT ACROSS THE BROADER ECONOMY.”

STARTUP VICTORIA, MAPPING VICTORIA'S STARTUP ECOSYSTEM³

DOES MELBOURNE NOT ALREADY HAVE INNOVATION HUBS?

The simple answer is yes. Approximately **97 percent** of Victorian startups are in and around Melbourne, while the top 10 locations for startups are: ⁴



Startups are only one facet of an innovation cluster, however, and the presence of these existing clusters does not mean that Melbourne is in the top league of world cities with innovation clusters. The competition is fierce, and Melbourne can benefit from seizing the opportunity now to help our innovation hubs grow and prosper.

How can Melbourne create and grow EICs?

To better understand the current thinking in Melbourne and the readiness of the city to integrate EICs, AECOM hosted a series of four workshops in mid-2017, drawing on the deep knowledge and extensive experience of some of Australia's leading thinkers in the fields of urban development, research and innovation, and public and transport policy. We would like to thank everyone who participated in the workshops (a list of participating organisations appears at the end of this report) for their invaluable contributions.

This report distils these contributions and our own research and offers some recommendations on the key facets of an EIC,

and the required steps that need to be taken to ensure their success. It forms part of our *Brilliant City Insights*, which includes previous work, such as *Innovating: Transforming Australian Cities with Innovation*.

This report concludes by applying these recommendations to Fishermans Bend, arguably the largest urban renewal opportunity in the country, which has the potential to be Australia's first globally competitive innovation powerhouse, and discusses three other Victorian Employment and Innovation Clusters.

Key recommendations for successful Employment and Innovation Clusters

A 'ONE WINDOW' INNOVATION CONCIERGE



A FLEXIBLE PLANNING FRAMEWORK



HIGH-QUALITY URBAN DESIGN AND ARCHITECTURAL APPLICATION



SETTING MEASURABLE PERFORMANCE TARGETS



PLANNING FOR MELBOURNE AS A COLLECTION OF COOPERATING CLUSTERS



PROVIDING FINANCIAL AND ECONOMIC SUPPORT



CREATING AN ECONOMIC 'MEGA-REGION' WITH ADJACENT CITIES



FLAUNTING YOUR TALENT, SHOWING YOUR INNOVATION AND CONNECTING WITH ALL MELBURNIANS.



“CITIES HAVE NEVER BEEN MORE IMPORTANT, NOR THE COMPETITION AMONG THEM MORE INTENSE. THE CITIES POSITIONED TO EXCEL IN THIS TIME OF INCREDIBLE OPPORTUNITY AND REMAIN STRONG THROUGH TIMES OF DIFFICULTY ARE PURSUING BROAD, INTEGRATED STRATEGIES TO TAP HIDDEN VALUE, ATTRACT PEOPLE AND INVESTMENT, AND OVERCOME FINANCIAL AND OPERATIONAL CHALLENGES.

“Vibrant employment and innovation clusters can act as springboards to successfully commercialise research and develop the innovations that will support future economic growth for a broad range of sub-sectors. Well-planned, liveable and connected EICs are also central to attracting the entrepreneurs, talent and investment needed to win the innovation race, while providing economic opportunities across the innovation spectrum.

“Melbourne has a strong position and numerous advantages, as outlined in this report, but more needs to be done to climb up the rankings of global, innovative cities. Just as Melbourne did in the manufacturing age, the opportunity is there for the taking, but fortune favours the bold. It’s time for Melbourne to be bold again.”

STEPHEN ENGBLOM, GLOBAL CITIES DIRECTOR, AECOM



South Lake Union, Seattle

INDEXING THE EIC — A METHOD TO MEASURE THE EIC

Measuring success

A resounding theme in our research and workshops has been the need to clearly describe performance targets as the basis to recognise when success has been achieved or progress has been made in the development of the EIC. Recently, innovation initiatives such as the federal government's National Innovation and Science Agenda (NISA) have suffered some negative criticism with regard to their ability to measure their outcomes. Such criticism does not recognise the unique and extraordinary nature of programmes such as NISA and various funding and policy support mechanisms. A generic, 'business-as-usual' approach to measuring the financial benefits of such a programme is not always appropriate, which is why a framework for assessing success specific to innovation and the development of EICs is critical. If Australia is to 'normalise' investment in innovation and understand it as a key and wide-ranging business activity, we will need to develop a bespoke index — or set of measurable criteria — that suits our specific economic and cultural realities.

Currently, Australia has two broad indices that aim to assess the performance of a contemporary Australian city. These are: the *National Cities Performance Framework Interim Report* and *The Knowledge City Index* (both issued in 2017). Both indices

are very relevant in the setting of targets and measurement of incremental success (or failure) for the broader city and are beneficial for policy-makers across Australia. And both take a broader view across the range of activities that a complete city engages. However, they do not assist us in dealing with the development of key parts of existing cities focused on creating a higher-performing relationship among research, innovation and commercialisation.

As part of this report, we have developed a bespoke framework of key performance indicators (KPIs) derived from the workshops, research and existing literature regarding

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the 'rise of the innovation cluster'. We believe that such a set of KPIs can help policy-makers, developers and the community understand the role and potential of the innovation cluster, its evolution over time, and any areas that might require government support or intervention.

The intent of our KPI framework is not simply to describe an ideal end state for the EIC. We believe that it would be far more effective to identify the performance of the current cluster, focus on improvements that are likely to have maximum impact with minimum investment and then set forth a broader strategy for development. The framework has been divided into three

categories with a series of discrete and measurable areas. Each specific area takes into account the emerging issues and themes from our EIC investigations, which form the basis of this report.

The EIC Index

GOVERNANCE + COLLABORATION

- Attracting investment and commercialisation
- Clear delivery models (across three tiers of government)
- Research, networking and collaboration
- Global relevance and connectivity
- Presence of anchor institution or tenant
- High-profile champion

THE PHYSICAL CLUSTER

- Digital connectivity
- Mass-transit connection
- Internal transit system (active and passive)
- Built form promoting activation of the public realm
- Demonstrations of design innovation
- Affordability and variety of commercial and residential property options

RESILIENT SYSTEMS

- Investment balance and commercialisation
- Clear delivery models (across three tiers of government)
- Research, networking and collaboration
- Global relevance and connectivity
- Presence of anchor institution or tenant
- High-profile champion

This index has been developed as a tool to assist with the design and management of EICs. The index comprises quantifiable factors, and can therefore serve as a method for planning and measuring key variables specific to any EIC. It has been developed from the elements that we know are critical to the success of an EIC, which form the basis of this report.



RMIT New Academic Street, Melbourne, Australia

03

CRITICAL ELEMENTS OF AN EIC

A strong foundation:
Governance,
leadership
and collaboration

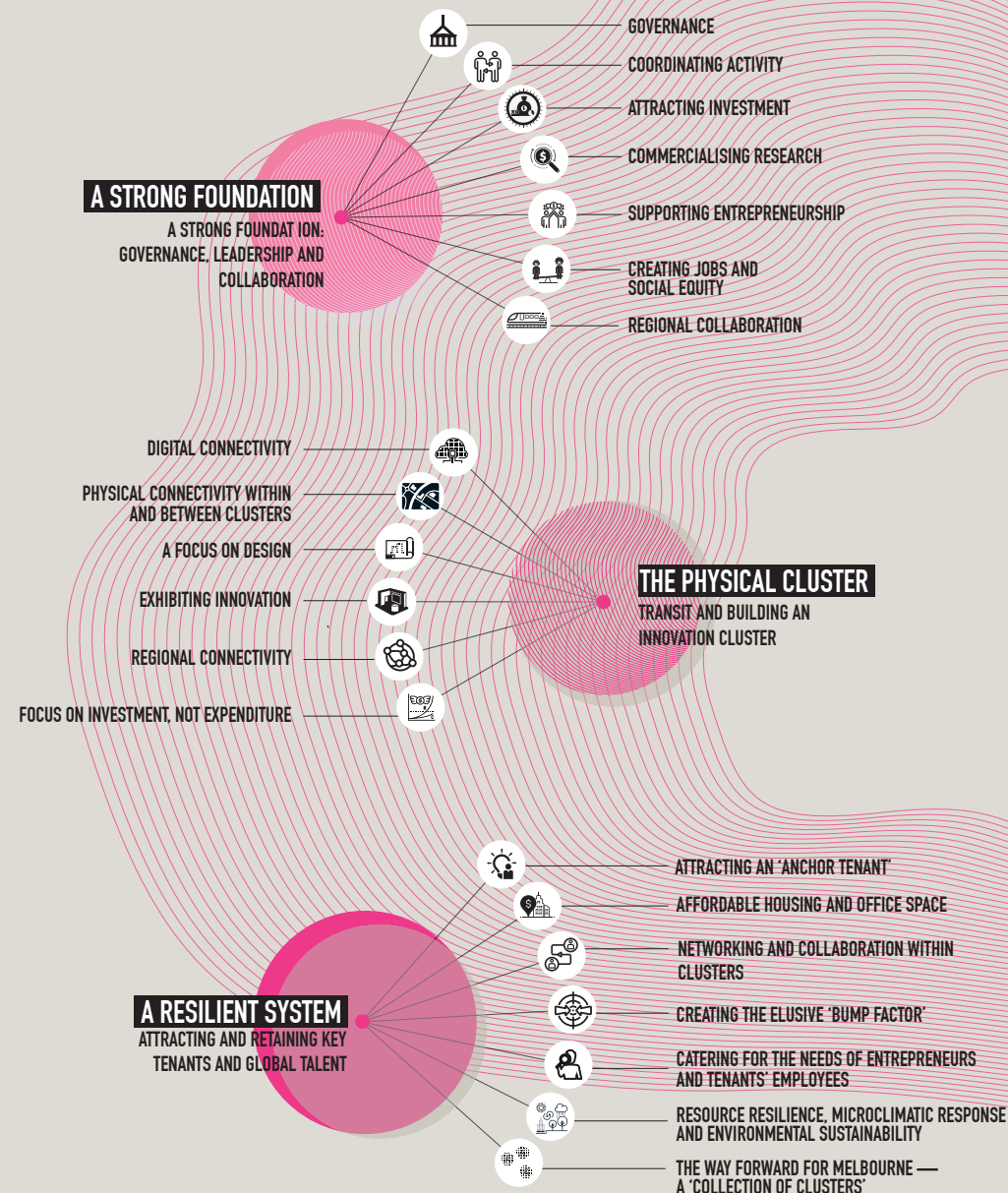
GOVERNANCE

When developing an innovation cluster, it is vital to ensure that stakeholders are engaged, or at the very least consulted, and that their input is given careful consideration and incorporated, where appropriate. However, there needs to be a definitive group responsible for deciding which stakeholders are more critical, and which clearly understands the unique nature of its focus cluster.

In the case of urban renewal projects such as Fishermans Bend, there is normally not one single organisation in charge of the process of regenerating a district; there may instead be several authorities with jurisdiction over different aspects of the

There is no magic recipe guaranteeing the creation of successful Employment and Innovation Clusters.⁵ Indeed, it must be recognised that innovation clusters are all unique, with their own distinct economic strengths, growth prospects, geographies and other characteristics, and therefore require tailored policies to underpin their success.⁶ But there are some factors that all successful EICs have in common, as well as some unique attributes that convey specific advantages on a location.

project and coordinating the renewal can therefore become complex and challenging. In South Australia, for example, Renewal SA was responsible for delivering the Tonsley precinct, but this still required working closely with stakeholders, such as Flinders University, CSIRO, South Australian TAFE and Marion City Council.





TONSLEY PRECINCT

The Government of South Australia's Tonsley redevelopment project is creating a vibrant, sustainable, mixed-use precinct focused on driving development in high-value manufacturing. The project is an outstanding example of how a state government is able to 'kick-start' parts of its 'knowledge' economy by taking the lead and the risk in developing a facility focused on incubating innovative local business, training and research, and by forming links with local universities.

The project also incorporates education and retail operations with residential living. The 20-year project is a partnership between two leading economic agencies of the Government of South Australia: Renewal SA and the Department of State Development. Tonsley intends to help unlock the greater potential of existing urban areas, enhancing local industry capacity and the distinctive South Australian lifestyle, displaying excellence in planning and lasting quality in execution.

Tonsley intends to attract innovative businesses ready to capitalise on participation in a ground-breaking Australian investment opportunity.

It provides the facilities, infrastructure and opportunities for creative collaboration between industry, research and education, within an environment conducive to the clustering of high-value manufacturing and technology-based firms. Tonsley has set out to provide a range of options for investment in the site, including an eight-hectare Main Assembly Building and across the remainder of the 61-hectare site. Smaller businesses are catered for through allotments from 200 square metres, which are available for high-value industry, commercial and retail operations in a combination of leasehold and outright purchase arrangements.

Photo by Pete Wrighton Unsplash

There is a range of potential delivery models, such as an 'authority' model, which could lend itself to a single fixed precinct with clear objectives, through to a regional/ local government-type model focussed on meeting emerging objectives within a large fixed district, such as the City of Greater Bendigo. In Victoria, authorities have become more prevalent in delivering major projects: Melbourne Metro; the Level Crossings Removal Authority (LXRA); the Westgate Tunnel; and so on. Authorities are more able to retain and effectively apply a specific focus on the delivery of their project, but with a framework for obtaining regular stakeholder input. The experiences of these authorities each offer lessons that can be applied to a specific urban renewal opportunity. However, the advisory committee to the Minister for Planning already exists and, together with the Fishermans Bend Task Force, is currently providing a basis for a governance model that can be built on in the future.

“THE RIGHT GOVERNANCE STRUCTURES NEED TO BE IN PLACE; CLUSTERS ARE ALL DIFFERENT AND DYNAMIC AND THERE’S NO ONE-SIZE-FITS-ALL APPROACH.”

AECOM VEICs WORKSHOP PARTICIPANT



COORDINATING ACTIVITY

One of the central issues to be solved in laying the foundation for an innovation cluster is ensuring that there is a way of coordinating activity among the various players, including the startups, established companies, financiers, property developers/ managers, government departments and others that play a role in building an innovation 'ecosystem'. Government can, and indeed should, take a leading role in establishing this framework, and ensuring that it is as simple and well-connected as possible.

One approach with strong merit is to provide a central government office as 'one window' into all levels of government, which can coordinate referrals on all aspects of setting up a business and accessing all government programmes designed to benefit not just startups, but any type or size of business. Although there have been initiatives similar to this aimed at startups, it is rather arbitrary that a firm that is only three years old or has over a dozen employees should be prevented from accessing such a service. Medium-sized businesses that are growing



ATTRACTING INVESTMENT

often have special requirements of their own (such as, for example, related to protecting intellectual property) and governments can support them in scaling up and becoming successful by allowing them to continue to receive information as they grow. This 'one stop shop' innovation concierge was discussed at AECOM's workshop and had broad support among participants, though it should be noted that setting it up would require an unusually high level of cooperation between different levels of government.

A key to the success of an employment and innovation cluster is its ability to attract investment. As with the governance models for a district or cluster, the investment strategy will need to be very specific to its needs and almost always requires a mixture of private and public investment. The nature of the investment and the expected type and rates of return will differ. However, all investors will require clarity on: what their return is likely to be; any financial or indirect community benefits; and what is needed to develop a future skilled workforce.



COMMERCIALISING RESEARCH

One of the greatest economic resources is the commercialisation of research. Australia is a strong performer in conducting basic research, yet it has a rather poor track record when it comes to commercialising it (with some notable exceptions, such as companies like Cochlear and CSL).⁷ As for Victoria, Melbourne is a leading Australian research centre, particularly in the fields of pharmaceuticals and biotechnology. In fact, Melbourne's leading source of patents is in the pharmaceutical industry.⁸ Monash University, for example, was ranked second in the world in 2016 for pharmacy and pharmacology behind Harvard University, and Monash actually scored higher in 'academic reputation' in this area; however, it was slightly lower in 'citations' and research impact'.⁹ It is the 'impact' indicator that alludes to how productive the follow-on activities, such as patent creation, are. It is clear then that Melbourne hosts some globally significant, stand-out institutions. However, we would argue that there is far more untapped potential in the areas of 'impact' to be found.

Unfortunately, Australians don't always realise the commercial benefits of those innovations that we do create; one only needs to consider the case of WiFi — a CSIRO invention — the financial benefits of which accrued significantly more to commercial enterprises overseas than to Australia. This needs to change, and a greater focus is necessary from government, academia and the broader community on the commercial application of Australian innovation.



SUPPORTING ENTREPRENEURSHIP

It is entirely possible that many more Australians want to be entrepreneurs than are, but that the incentives are not appropriately aligned or they perceive other barriers to entrepreneurship (e.g. Australia's high cost of living — and the resulting risk to one's standard of living — could be one). This could result from, for example, a perceived lack of adequate reward for taking risks, or it could be that Australia's record-breaking run of economic growth has conditioned Australians to be satisfied with the relative safety (and generally high wages compared to countries in our peer group) offered by employment. Whatever the reason, despite this there is a growing focus on entrepreneurship — and particularly among younger Australians, which is encouraging. The key is to get potential Australian entrepreneurs to take action by starting their own businesses and adequately rewarding those who do.

CREATING JOBS AND SOCIAL EQUITY

It almost goes without saying that job creation is the ‘Holy Grail’ of governing. Every government, of whatever political stripe, wants to be seen to be presiding over a buoyant economy that creates good jobs (usually defined as permanent, full time and well paying) for residents, but the media tend to focus on the number of jobs created, not their quality, in newspaper headlines. Speaking of the media, recently emerging disruptors and ‘mega-businesses’, have in the past come under fire from some mainstream media outlets for promoting a culture of high-volume, low-paid work. Learning from the lessons of the first two industrial revolutions, this lowly paid factory style work led to urban squaller and, eventually, the labour movement.

In any case, will the automation of factory work soon see this type of employment go to machines, not to humans? Companies such as Tesla have focused on elevating the skill base of the lower-paid, high-volume worker so that the new workforce is made from humans operating and monitoring

the machines, growing the income base for many and allowing the workforce to contribute and enjoy the benefits of this new, advanced manufacturing industry.

Government can promote networking and cooperation among stakeholders with the aim of fostering the relationships and mentoring activities that help new businesses scale up and become successful.

In Melbourne, even in the absence of a ‘one window innovation concierge’, Innovation Victoria can play a central role in coordinating stakeholders, and supporting entrepreneurs in navigating all levels of government and their departments and programmes, while fostering connections with other innovators, sources of finance, research/educational institutions, growth opportunities, talent, real estate, and mentors.



REGIONAL COLLABORATION

The world is becoming more organised around large city-regions comprising two or more cities in a shared region that collaborate for mutual benefit. The Pearl River Delta in southern China is an excellent example of this. Eleven large cities in the region, including the major metropolises of Hong Kong, Guangzhou and Shenzhen, have overtaken Tokyo as the world’s largest urban agglomeration and are working together to promote the region internationally.¹⁰

Australia has no comparable-sized agglomeration of cities and the distance between our large cities is vast; nevertheless, the potential for Melbourne and Sydney, in particular (and even extending to Canberra and Brisbane/Gold Coast), to bury their history of rivalry and start cooperating as a mega-region against other mega-regions around the world is compelling. Efforts to



promote cooperation should be encouraged and rewarded by the federal government and the governments of Victoria, New South Wales, Queensland and the Australian Capital Territory need to begin discussions on this issue urgently. There was a general consensus on this point among participants at our workshops and the point is borne out both by global trends and other research reports, such as the *Smart Cities Plan*.

“...FUNDING IS NOT ENOUGH. THE GLOBAL LESSON IS THAT CITIES NEED TO COLLABORATE TO COMPETE. SUCCESS REQUIRES ALL TIERS OF GOVERNMENT, THE PRIVATE SECTOR, AND COMMUNITY, TO WORK TOGETHER TOWARDS SHARED GOALS.”

THE HONOURABLE MALCOLM TURNBULL, MP, PRIME MINISTER OF AUSTRALIA; AND THE HONOURABLE ANGUS TURNER, MP, ASSISTANT MINISTER FOR CITIES AND DIGITAL TRANSFORMATION, IN THE FOREWORD TO THE *SMART CITIES PLAN*.¹¹

The physical cluster: Transit and building an innovation cluster

Any successful employment and innovation cluster needs its physical environment to be attractive to entrepreneurs and to other highly skilled and talented workers. One of the key aspects to make a location attractive is to have excellent public transit. This means that the cluster needs to be connected physically by multi-modal transit options running on consistent, frequent schedules, both within the cluster and to surrounding areas and other nearby clusters. It must also have sufficient and affordable housing and office space and appropriately advanced digital access.

Above all, these clusters must be engaging, exciting, and comfortable, and provide the physical environment where our innovation workers feel free to connect, converse, switch-on, or just relax.



DIGITAL CONNECTIVITY

It is widely accepted that to have any chance of being an innovation cluster today and in the future, the cluster must have excellent digital connectivity, including fast internet connection speeds. Australia has some real challenges to be overcome around digital connectivity.¹² However, within clusters a genuine high-speed broadband network must be present. Digital connectivity both within and between clusters can also be established quite cheaply. In fact, in a talk by Dr Roland Busch, CEO of Siemens Asia

Pacific, at the CEDA Global Smart Cities event in November 2017, he noted that Germany is regretting its decision five years ago to spend only 2.8 percent of its GDP on communications infrastructure, and has recently increased this by 0.5 percent, considered the bare minimum. China, of course, is known to be investing significant proportions of its GDP as well,¹³ while Australia currently languishes at 0.5 percent.



PHYSICAL CONNECTIVITY WITHIN AND BETWEEN CLUSTERS

To achieve their fullest potential, clusters need to be well integrated — with excellent transit connections to other nearby clusters and to the broader city in which they are located. It is equally important that they have internal cohesion.

What each particular cluster requires in terms of specific connections will be unique, but they will certainly require, at a minimum:

- Connections to a metropolitan mass-transit network, ideally consisting of several different modes of transit (e.g. rail, light rail, bus)
- Connections to immediately adjacent neighbourhoods, allowing surrounding communities to take advantage of both

the employment opportunities and the public amenities available in the EICs.

It is critical that advanced manufacturers and other high-tech companies are able to move researchers and other knowledge workers — as well as their equipment, products and all other goods that sustain them — efficiently. Where high-performing innovation centres are concerned, this transit and transport connectivity is far more than just satisfying the needs of the daily commute.

StartupAUS's *Crossroads* report highlights the need for startup ecosystems (and by extension this is true of innovation clusters) to be "geographically concentrated":

"IT IS WIDELY RECOGNISED THAT "STARTUP DENSITY" IS AN IMPORTANT FACTOR IN GROWING SUCCESSFUL STARTUP ECOSYSTEMS... HIGH STARTUP DENSITY IS ACHIEVED WHEN STARTUP FOUNDERS AND OTHER PARTICIPANTS IN THE ECOSYSTEM (INVESTORS, ADVISORS, MENTORS ETC) WORK IN CLOSE PROXIMITY AND BENEFIT FROM FREQUENT "COLLISIONS" WHICH ENABLE THEM TO RAPIDLY SHARE LEARNINGS AND BUILD HIGHLY EFFECTIVE NETWORKS."¹⁴

EICs remain viable as long as those who work within them see value in the access to other like-minded innovators and entrepreneurs. As soon as this aspect of working in an EIC becomes difficult, then the advantage of working together is reduced. It is this effect — and the often-surprisingly large benefits that can occur from spontaneous interactions — that we have termed the ‘bump factor’, which we have described more fully below. Silicon Valley, while highly effective in previous decades, has become inefficient from this perspective, and is now considered a particularly siloed and hostile place for pedestrians, isolating activity to the interiors of individual and unconnected buildings. The next generation of developers have taken note and are leading a shift toward a very different physical environment. This evolution in planning and designing EICs has been driven by the so-called ‘human-centred’ and ‘activity-based’ design philosophies.



A FOCUS ON DESIGN

People should be at the core of any design. Building upon strong physical connectivity and mobility, it is vital to create a strong and appealing ‘sense of place’. Many well-regarded cities provide movement corridors and recreational and cultural spaces in close proximity. A range of scales within these spaces is also important and attractive, such as having laneways suitable only for pedestrians alongside transit corridors. A well-thought-out public realm,

incorporating diverse spaces provides the ‘bones’ from which to develop a strong sense of place that will prove to be attractive to major tenants and their employees.



EXHIBITING INNOVATION

Another way to build the sense of place is to make the innovations that take place within an EIC accessible to the public through exhibiting such work. In a new precinct, which might be lacking a genuine urban feeling, the sense of connection to the work being carried out by tenants can serve to instil pride in the local workforce and residents and promote an understanding of the important role of the EIC while inspiring the next cohort of scientists, entrepreneurs and thought leaders.

Melbourne University’s Carlton Connect Initiative boasts as a major tenant *The Science Gallery™*, which provides a series of labs and curated exposition spaces that could serve as a precedent for a similar set-up in a new EIC. Building on this concept, the EIC could begin to see itself as a collection of similar public exhibition spaces, creating both a series of destinations for young people developing a career in technology during the week and then a hub for major exhibitions or festivals during peak periods. Such a collection of spaces would be an excellent way of promoting Melbourne’s global significance as a centre of innovation.



Massachusetts Institute of Technology Campus, Boston, USA



REGIONAL CONNECTIVITY

As mentioned in the previous section, regional collaboration will be a key to globally successful cities in the future. As part of this, it behoves governments at all levels to give serious consideration to both the required governance structures that could be put in place to support the mega-region, but also to the physical infrastructure that could underpin it, such as high-speed rail connecting Brisbane, Sydney, Canberra and Melbourne.



FOCUS ON INVESTMENT, NOT EXPENDITURE

It must be recognised that the Government of Victoria has a very significant challenge ahead in dealing with unprecedented population growth. Victoria is growing at a blistering pace of nearly 150,000 residents per year,¹⁵ for an annual increase of about 2.4 percent, of which well over 100,000 are settling in Melbourne.¹⁶ This is straining the resources available to develop expensive transit infrastructure and to ensure that basic housing needs and essential social services are being met.

At our workshop, the question was asked why then would the state government make a special effort to privilege looking after the interests of EICs ahead of transit and housing more broadly? The answer is twofold.

First, it need not necessarily be the case that 'special' expenditures are needed. The development of clusters is part of the normal development of the city and it is important to simply take account of where these clusters are developing and to provide them with at least the same amount of support (though perhaps better targeted to their needs) that every neighbourhood is entitled to — it is not necessarily a case of special treatment, but rather simply of appropriate planning and better targeting the provision of necessary infrastructure.

Second, any investment in these clusters is expected to pay off in the long run by boosting economic efficiency and growth, as well as jobs and taxes, beyond what would be the case if innovation was not being fostered through EICs. As such, any additional 'special' funds that are invested in EICs over and above that which other neighbourhoods receive are not expected to detract from the resources available to the city overall or even just to be revenue neutral; these investments should in fact boost tax revenues over the medium to long run and therefore it is entirely appropriate to view them as an investment rather than an expenditure.

The point is that EICs result in growing the pie that is available for everyone's benefit, not simply dividing the existing pie. A zero-sum focus in this case is truly counterproductive and detrimental to society's best interests.



CASE STUDY – 22@ BARCELONA

22@ Barcelona Spain is an example of an innovation precinct developed from an old industrial area to create a dynamic business area, incorporating social housing and green spaces in a highly urbanised, densified environment. It included planning for the ultimate creation of 4,000 subsidised housing units and 114,000m² of public, open-space areas to create a high level of urban and environmental amenity. Extensive underground infrastructure has also been constructed to create a highly connected precinct above ground. This has seen the transformation of the precinct from a low-density industrial precinct to a dense, mixed-use precinct with a critical mass of industries. It has been successful in attracting national and international talent and is widely considered a benchmark across the globe.

A resilient system: Attracting and retaining key tenants and global talent

By resiliency we mean all types: environmental; economic; and social. Many of these subjects have been dealt with in various forms above; however, the hallmark of a healthy 'ecosystem' of any type is a resiliency and adaptability of all component parts. Many successful clusters are based around headquarters, R&D facilities or large offices of at least one — and often several — 'anchor tenants'. An anchor tenant can be a large corporation, such as (though not necessarily) a technology company, or an institution, such as a university or a hospital with a focus on developing medical research. Importantly, the company or institution should be generating innovations in its own right (as is often the case with startups that reach a certain scale), and significant enough in scale and complexity to attract other organisations that will foster innovation, such as high-tech components suppliers. The

former would include technology companies, such as Google or Amazon, while an example of the latter could be a large aeronautics/defence company. To be successful in attracting anchor tenants, the cluster must also be relatively open to attracting global talent and capable of retaining it.

Anchor tenants provide the backbone of a cluster's local economy and, equally importantly, their presence attracts other companies that want to do business with that organisation, as well as the highly skilled workers that are attractive to all employers, deepening a locale's pool of available talent. Through the spending power of its employees, an anchor tenant will also attract a range of support services, such as cafes, bars and restaurants, dry cleaners, grocers, gyms, chemists, and so on, which provide additional employment.



ATTRACTING AN ANCHOR TENANT

Among the very first considerations for an anchor tenant will be adequate public transit for the organisation's employees (discussed above) and sufficient and appropriate office space, of a quality and design appropriate to its level of maturity. Given that a cluster will ideally contain a range of different organisations at different levels of maturity, the cluster will need a wide range of office accommodation, from relatively inexpensive through to high-end office space.



AFFORDABLE HOUSING AND OFFICE SPACE

It is no secret that Melbourne has relatively expensive housing and suffers from a particular challenge in providing sufficient affordable housing for workers on lower incomes. This has implications both for more-modestly paid workers in established organisations, and also for workers of all levels in startups, where even the founders are likely drawing modest salaries in the early years of the business.

A perennial problem, too, for early stage startups — plus other categories of employers, such as charities — is the availability of affordable office space. Due to affordability concerns, employment and innovation clusters have tended to spring up in relatively less-affluent neighbourhoods and often even in less-affluent cities that have a sufficient supply of affordable housing and office space. A number of entrepreneurs have picked up on this need for flexible and affordable co-working space and created 'offices' where startups and freelancers can rent space.

The location of startups in more-affordable neighbourhoods is generally mutually beneficial. Even as the startups benefit from cheaper housing and office/manufacturing space, their payrolls and increasing local business activity resulting from them as they grow naturally stimulate a regeneration of these less-well-off areas, and provide jobs and opportunities to local residents to develop their skills.

For its part, Melbourne is certainly more affordable than, for example, Sydney, but it should be noted that the Government of New South Wales has leased an entire office building at Wynyard Station in central Sydney at a cost of \$35 million per year with the intention of providing low-cost office space to startups. And while Melbourne currently has a reasonable mix of both high-end office space and more-affordable options, as the city develops further each year there will be more pressure on the supply of affordable office space. As such, while specific action in this regard may not be necessary at present, Victoria cannot rest on its laurels and should continue to monitor the programmes that other jurisdictions are putting in place to lure Melbourne-based startups, while continuing to work to promote a good mixture of both affordable office space and homes.

While startup businesses in Melbourne and Sydney enjoy strong support from government, organisations such as the Venture Café Foundation in Boston provide an example of how our own centres of innovation could become more sophisticated, inclusive and productive. The Venture Café Foundation is a non-profit organisation that provides office space, programming and connections designed to build relationships between entrepreneurs, investors and innovators. This is not particularly unique; what is, however, is their inclusion of 'big business' and senior government decision-makers, their arrangement of activities and programmes and the respect they have developed amongst the Boston business and research community.



NETWORKING AND COLLABORATION WITHIN CLUSTERS

Ideally, relationships need to be formed at the beginning of a cluster and also to continue throughout its existence, supplemented regularly with additional, new relationships developed over time. One very effective way of fostering those relationships is through the smart design of the physical space and the broader public realm.

Spatial design and the random interactions that can occur as a result of co-location of diverse teams have been shown to have positive effects on innovation. Perhaps the most-famous example is the case of MIT's legendary Building 20, which serves as an inspiration for startup incubators and accelerators. This 'temporary' WWII-era building spawned an explosion of knowledge, partly as a result of the collision of ideas and random interactions its quirky design fostered among its diverse set of occupants. Leading thinkers such as Noam Chomsky rubbed shoulders with biologists, psychologists and computer scientists within its confines. The interactions among the diverse disciplines housed in the building led to "knowledge spillovers" and resulted in innovations in areas such as radar, the physics of microwaves, acoustics, videogames and linguistics, and directly led to the founding of the Bose Corporation. Another devotee of forcing teams of different people to interact randomly was none other than Steve Jobs, who applied the principle with an almost-obsessive zeal to his Pixar Films headquarters, where he centralised nearly every building function

in a central atrium so that everyone in the company would regularly have to visit it.¹⁷

While it is arguable whether you could in fact guarantee greater levels of innovation by creating a more open building form that encourages random face-to-face encounters among diverse teams,¹⁸ it is perhaps telling nonetheless that some of the most-successful innovators in history have experienced the principle's effects first hand and seemed to swear by it.¹⁹ It is more than likely then that when Melbourne develops a 'new' employment and innovation cluster, or significantly expands an existing one, a partly 'enforced' or at least highly incentivised system of co-working and collaboration will need to be strongly considered and implemented. Participants in AECOM's workshops consistently recognised the benefits of networking between startup founders, and among them and a whole cadre of ancillary professionals and supporters.

“INNOVATION IS A COLLISION SPORT.”

JAMES ROSENWAX, DIRECTOR, CITIES AT AECOM AUSTRALIA AND NEW ZEALAND

CREATING THE ELUSIVE ‘BUMP FACTOR’?

Just as Steve Jobs’ Pixar building forced everyone to use the atrium, our view is that it is important to ensure that there are central spaces within clusters that will attract people for their own various reasons and facilitate unplanned interactions. These spaces should be attractive, enabled

with free, high-speed digital access, and comfortable enough to promote lingering. They should have appropriate services (transit connections, cafes, shops, attractive natural features, etc.) nearby to draw people to them, but also be attractive to people whatever their intent to be there.



CASE STUDY – SOUTH LAKE UNION

The South Lake Union innovation precinct in Seattle demonstrates the social and environmental benefits that precincts can deliver. It was developed from a post-industrial site into a high-tech precinct with laboratories, apartments and office buildings. The precinct is situated around a large central public park and features one-third affordable housing, significantly improved public transport and connectivity, high-quality public domain and a strong sustainability focus.

CATERING FOR THE NEEDS OF ENTREPRENEURS AND TENANTS' EMPLOYEES

Sole entrepreneurs and employees of smaller firms have needs that are distinct from those of large companies. They need access to a range of convenient amenities and services, including access to banks, post offices, cafes and drycleaners, for example. But what else do they want from a cluster? What makes one precinct more desirable than another? There has been a lot of research into what makes a place attractive to talent, and one of the foremost academics in this regard is Dr Richard Florida at the University of Toronto's Rotman School of Business. Dr Florida is the developer of the famous "Bohemian Index" (among others) and has shown that, in general, innovative entrepreneurs and skilled workers tend to be attracted to places offering the "Three Ts":

- Technology
- Talent
- Tolerance.²⁰

In a nutshell, places that are open to the world and tolerant of diversity (e.g. in terms of race, culture, sexual orientation, gender equality, etc.) and which actively foster the arts, technology and innovation tend to attract talent, which is self-reinforcing. The more talent that a place attracts — and this is particularly true when it is able to attract the 'leading lights' in a field — the more additional talent tends to find a locality to be an attractive place to relocate to themselves. As employees in innovative companies tend to be ambitious, it comes back to enabling them to network, build client relationships, learn new skills and interact with peers and experts in their field. Having a critical mass of researchers in similar (though not necessarily identical) disciplines they can socialise with and learn from in a professional capacity is an important feature.

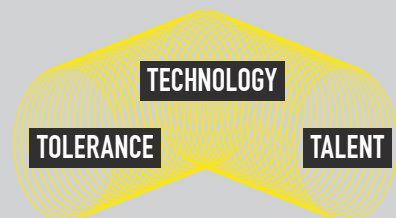
One particular issue that Australia is currently facing is the difficulties imposed in recruiting world-class talent under the recent changes to the immigration system, and especially changes to the former 457 visa. These changes have been unpopular with the business community as they make it harder to bring in specialists from overseas who have skills that are in high demand and short supply in Australia. StartupAUS, an industry group, advocates a simplified and improved "Entrepreneur Visa" subclass, for attracting experienced entrepreneurs in their report *Crossroads: An action plan to develop a vibrant tech startup ecosystem in Australia*.²¹

Furthermore, at a time when there is great interest among talent — especially in the technology industry — in some developed countries in relocating to another country as a result of political developments in their home countries, Australia could lose out on its fair share of top talent to cities in other countries as a result of its tightening of immigration restrictions; Melbourne and Sydney's loss may be Toronto's gain.²²

On top of this, Australia could do more to ensure that the international students we educate here are able to continue on living and working (and contributing) here permanently after they complete their studies. These issues represent a challenge for all Australian innovation clusters, of course, not just for those in Victoria, but they do make it harder for Australian clusters to compete with those in other countries, such as Canada, which are rolling out the welcome mat to global talent.²³ And it is particularly ironic that Melbourne, which boasts an enormous international education sector, is losing so many talented graduates who return to their home countries after their studies.



"BOHEMIAN INDEX" — "THREE TS":





RESOURCE RESILIENCE, MICROCLIMATIC RESPONSE AND ENVIRONMENTAL SUSTAINABILITY

Environmental resilience and sustainability is worthy of its own study in regard to highly innovative employment districts. However, for brevity we have focused on two distinct areas that are likely to reap the greatest benefits for an EIC. They involve the coordination of a range of private and public actors and are focused on the design of public realm spaces and the organisation of efficient and responsive services infrastructure.

As previous sections of this report have outlined, the public realm in the EIC needs to be designed as a primary site for ad hoc and semi-formal meetings of innovators, workers, thinkers and even the general public. For this to work, these spaces

need to be comfortable, responsive to the climate and resource efficient. There are several simple 'rules of thumb' when designing great streets, parks and urban spaces. Much of this involves elements such as trees and their canopies and a strong grasp on how people use spaces.

In addition to this, the initial planning of an EIC must seek to implement the most-efficient and resilient technologies available. The need for flexibility within the EIC means that the demands of systems such as water, waste and energy need to be highly responsive to adding or removing large tenants with a range of operational needs.



THE WAY FORWARD FOR MELBOURNE — A 'COLLECTION OF CLUSTERS'

The sizeable scale of large anchor tenants allows for some scope for a variety of different sorts of (related) research to take off within a cluster. That being said, there's an inherent tension between specialisation and breadth of research. Universities are able to manage this tension so it is less of an issue in a university-focused cluster, but in a cluster dominated by a single large commercial enterprise this is less likely to be a successful strategy.

In this way, while Melbourne might not (at least easily and quickly) achieve a similar status to Boston, which is that rare beast — a single city that contains a critical mass of leading researchers in numerous industries — our city could nonetheless achieve a 'third way' as a 'collection of clusters' between the example of Boston and a more-focused city specialising in one or two areas. Melbourne should focus on a series of clusters and make every effort to brand these clusters individually to appeal to businesses in those areas.

A good example for Melbourne to consider is Los Angeles' Silicon Beach corridor in the Westside region of the city. In 2012, the region was regarded as one of the top three 'tech-hubs' globally, hosting the regional offices of organisations such as: Google; Yahoo!; YouTube; Facebook; Salesforce; and Electronic Arts. The real lesson for Melbourne in this case is that the success of Silicon Beach was not its ability to attract specific types of businesses, but rather the amazing variety and volume of start-up activity that surrounded them. Silicon Beach did not need to attract the headquarters of these organisations to be successful either; it was the symbiotic buzz of innovative activity that made Silicon Beach distinctive. Universities such as UCLA sit amongst this proliferation of big industry and smaller start-ups, further boosting the engagement of entrepreneurs, product developers, researchers and their markets.

04

CASE STUDIES: EMPLOYMENT AND INNOVATION CLUSTERS IN VICTORIA

Fishermans Bend National Employment and Innovation Cluster

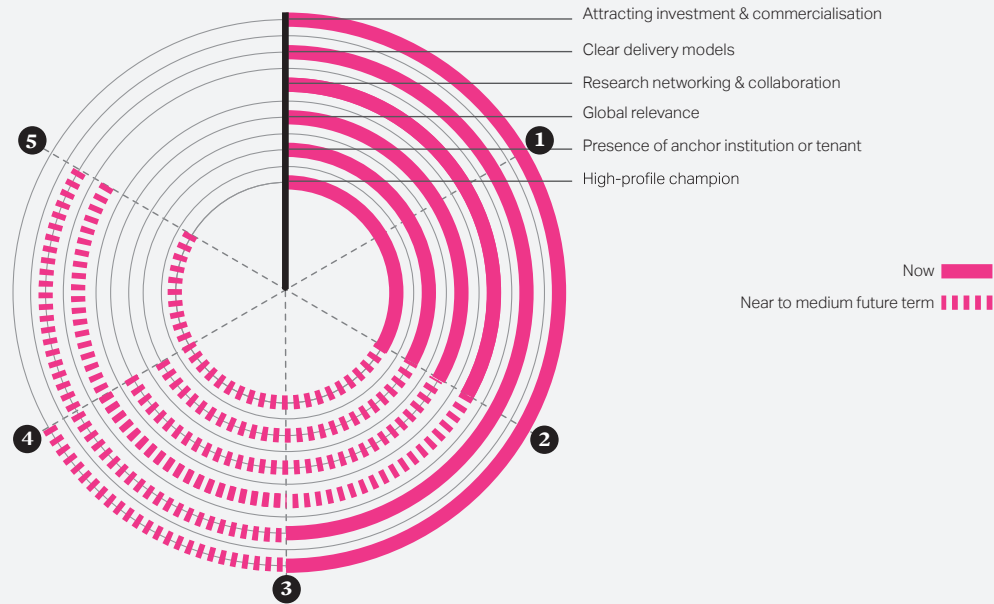
This is the 'emerging', high-potential, Melbourne cluster that needs to be designed from the ground up with a view to attracting new investment and relieving pressure on other existing urban clusters; a key point is that it should develop its own unique specialisation that is complementary to other existing clusters. Fishermans Bend has one huge advantage over most other global clusters: a planned 80,000 residents living within a 20-minute bike ride. To be built over the next 30 years, the residential precincts of Fishermans Bend will provide a variety of housing types and costs, providing one of the most sought-after aspects of clusters generally.

THE FISHERMANS BEND EIC INDEX

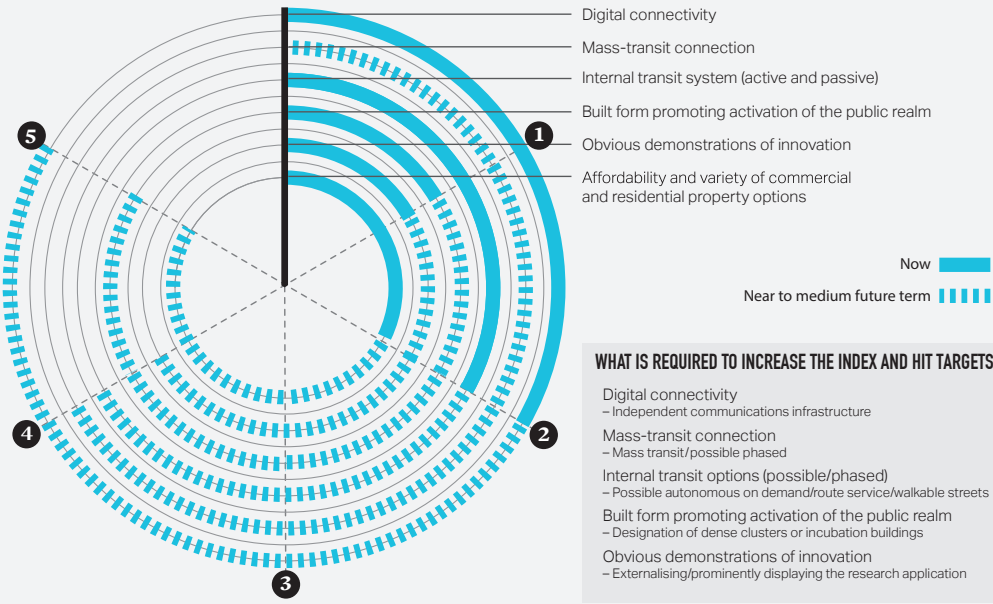
The numeric scale of this graph represents a simplified output from our analysis of the existing and 'near future' performance of each cluster: with 1 representing a low performance and 5, the highest.

The method of rating and metrics used are very detailed. AECOM's Cities team can apply these to specific projects as required.

A STRONG FOUNDATION: GOVERNANCE, LEADERSHIP + COLLABORATION



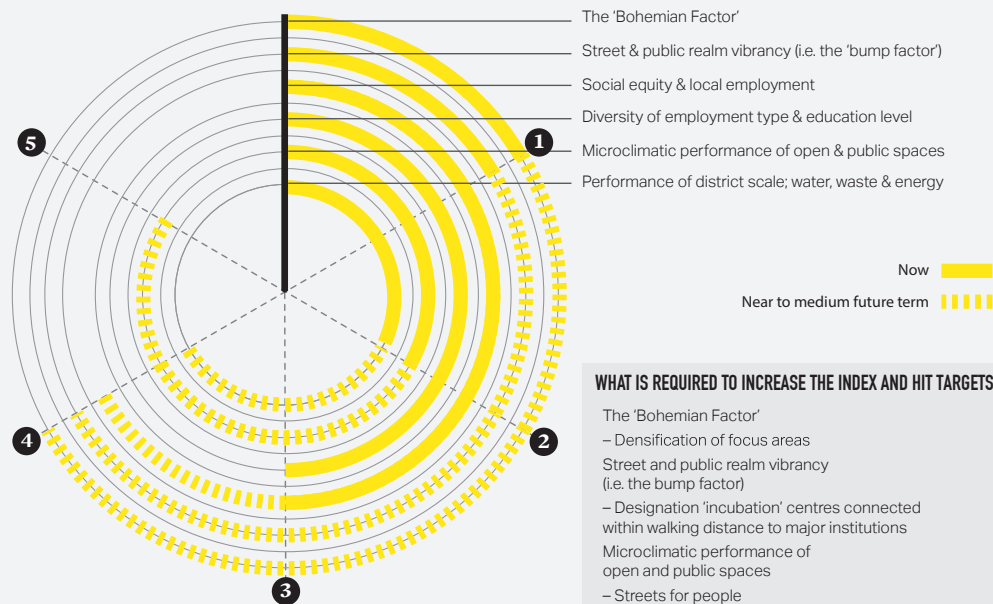
THE PHYSICAL CLUSTER: TRANSIT AND BUILDING AN INNOVATION CLUSTER



WHAT IS REQUIRED TO INCREASE THE INDEX AND HIT TARGETS

- Digital connectivity
 - Independent communications infrastructure
- Mass-transit connection
 - Mass transit/possible phased
- Internal transit options (possible/phased)
 - Possible autonomous on demand/route service/walkable streets
- Built form promoting activation of the public realm
 - Designation of dense clusters or incubation buildings
- Obvious demonstrations of innovation
 - Externalising/prominently displaying the research application

RESILIENT SYSTEMS: ATTRACTING AND RETAINING KEY TENANTS AND GLOBAL TALENT



WHAT IS REQUIRED TO INCREASE THE INDEX AND HIT TARGETS

- The 'Bohemian Factor'
 - Densification of focus areas
- Street and public realm vibrancy (i.e. the bump factor)
 - Designation 'incubation' centres connected within walking distance to major institutions
- Microclimatic performance of open and public spaces
 - Streets for people

A STRONG FOUNDATION: GOVERNANCE, LEADERSHIP AND COLLABORATION

Since 2015, the framework for Fishermans Bend has been developed under the governance of the Ministerial Advisory Committee and Task Force. Together, these groups provide a robust governance framework; however, once the planning scheme for the residential precincts is implemented in June 2018 (as is expected at time of writing), a 'new' or evolved governance structure will be announced.

In relation to Fishermans Bend, there is a once-in-a-generation opportunity to get the conditions right to promote this as a new cluster, but it is important to be mindful of the fact there are existing 'unofficial' EICs in pockets of the city—including Collingwood and Fitzroy. There was much discussion at AECOM's workshops about whether Melbourne needs new, designated EICs (as EICs have been designated under the national plan) and, if so, where that leaves these existing areas. It was suggested that there should be consideration given to each of the seven potential 'National EICs' in Melbourne and what makes each one unique.

THE PHYSICAL CLUSTER: TRANSIT AND BUILDING AN INNOVATION CLUSTER

The Fishermans Bend urban renewal district includes four discrete residential precincts in addition to the much larger employment area; accordingly, the need for transport and a dramatic increase in basic services is significant. Water, sewerage, energy and gas supply serve the current users well; however, their capacity will obviously need to be greatly increased.

The expected growth of the broader innovation cluster will ultimately require a mass-transit solution. The *Draft Fishermans Bend Framework (2017)* depicts dual light-rail spur lines and a split underground metro heavy rail line with two stations.²⁴ This infrastructure has been duplicated to separately serve the southern (residential) and northern (employment) districts. These districts require a new bridge over and new tunnel under the Yarra River, respectively. With regard to the light-rail solution, it is highly unlikely that this solution will be successful without a major restructuring of the light-rail system that currently serves the CBD and Docklands.

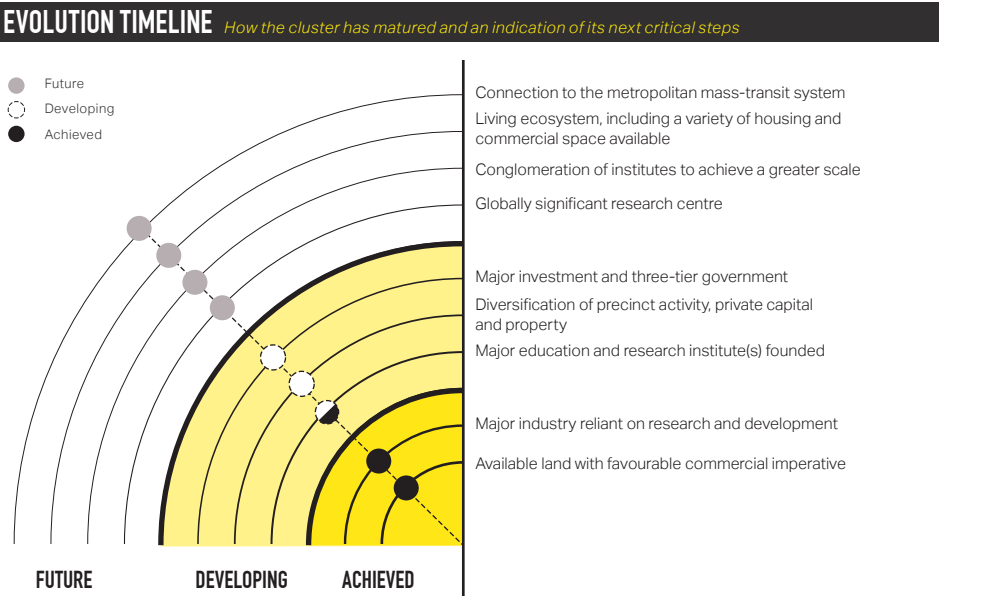
The proposed Fishermans Bend light rail line will (as currently indicated in the framework) need to connect to the current Collins Street/Victoria Harbour corridor. Given the significant growth in demand along this corridor the current services are nearing capacity. A Fishermans Bend connection would need to be very carefully planned so as not to put pressure elsewhere on the network.

A RESILIENT SYSTEM: ATTRACTING AND RETAINING KEY TENANTS AND GLOBAL TALENT

Perhaps what makes the Fishermans Bend innovation and employment district so compelling is its proximity to Melbourne's CBD, as well as its adjacency to a major freeway, road connections to the airport and a yet-to-be-publicly debated two-kilometre, north-facing waterfront edge.

The *Draft Fishermans Bend Framework (2017)*, which was recently released for public consultation, calls for approximately 80,000 new residents largely to the south and outside of the employment district, and 40,000 new jobs within the district by 2050. This is a largely speculative figure and does not yet take into account the types of jobs to be targeted for creation. Given the potential for a nationally (if not globally) significant advanced manufacturing centre at this site and the shift to flexible and remote working, this figure may need to be revised several times in the coming years.

Overall, Fishermans Bend is already operating as a successful employment district. Its challenge is to evolve into a more-productive and more-innovative precinct capable of nurturing the development of future technology and translating it into commercially viable and globally significant applications in a variety of sectors.



The Monash National Employment and Innovation Cluster

Monash University's Clayton campus is at the heart of the Monash EIC. This is the 'established' Melbourne EIC and as such provides a strong basis for understanding what a successful cluster in the Melbourne context 'looks like'. Understanding Monash's areas of specialisation provides lessons that can be applied to other similar clusters. However, even the established centres have a series of 'next steps' they need to successfully navigate in their life cycle. In the case of Monash its separation from the metropolitan mass-transit system is a major barrier to greater success.

A STRONG FOUNDATION: GOVERNANCE, LEADERSHIP AND COLLABORATION

Monash University in the Monash National Employment and Innovation Cluster is one of Australia's most-successful and fastest-growing universities. For the past four decades, the campus has enjoyed being located very close to the demographic centre of Melbourne and has formed the basis for the Monash National Employment and Innovation Cluster. However, as the population of Melbourne starts to build rapidly in the north and west, Monash is losing one of its natural advantages.

Infrastructure Victoria's *Draft 30-Year Infrastructure Strategy* (October 2016) recommended a "new mass-transit network (incorporating light rail or bus rapid transit) to improve public transport access to the Monash EIC" be considered.²⁵ The strategy also recommended that public transport improvements to the Monash EIC be prioritised.²⁶

THE PHYSICAL CLUSTER: TRANSIT AND BUILDING AN INNOVATION CLUSTER

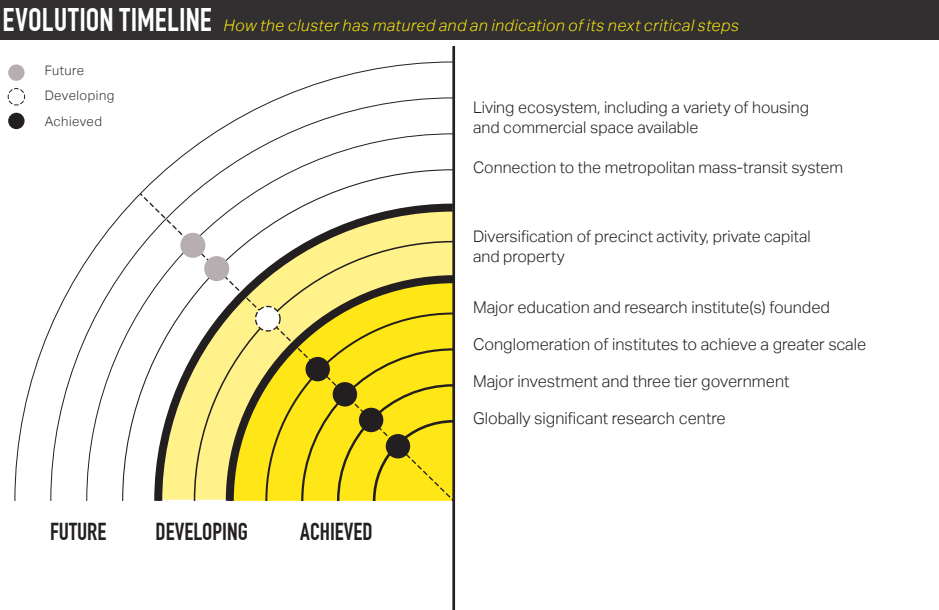
Traffic congestion and limited existing public transport options are becoming serious concerns with regard to the precinct's future growth. Many potential options for a mass-transit connection to the metropolitan network have been raised. Given the lack of an obvious mass-transit corridor, the most viable option seems to be a collection of rubber-wheeled and light-rail systems that leverage the existing road infrastructure. While this

may appear to be a lower-cost option, it would require significant coordination. The emerging Transport for Victoria may be in a position to provide this; however, it is clear that strong leadership and commitment from Monash University, the Victorian Planning Authority, and Vic Roads will be required to establish a direction for solving this issue.

A RESILIENT SYSTEM: ATTRACTING AND RETAINING KEY TENANTS AND GLOBAL TALENT

The Monash EIC is a leading non-CBD hub of employment, economic growth and innovation. The precinct's key strengths in education, health and future technologies are aligned to the state government's priority sectors for Victoria. It should then follow that further state government support to

assist with the location of key commercial tenants could 'super charge' the ability for Monash to commercialise its innovative research and to form new relationships with a range of large and small businesses.



The Sunshine National Employment and Innovation Cluster

Sunshine could possibly be the 'next Dandenong'. It is a suburban Melbourne cluster that can develop to serve as a focal point for jobs outside of the city's core. Sunshine already offers: relatively low land values; sound transport infrastructure (which is due to be enhanced as a result of the state government's recent announcement of a rail link to Melbourne Airport and other works to improve rail travel passing through Sunshine); a growing local population base; and high investment by the state government in major social infrastructure, such as in education and health.

A STRONG FOUNDATION: GOVERNANCE, LEADERSHIP AND COLLABORATION

The cluster also includes the Sunshine Metropolitan Activity Centre and the St Albans Major Activity Centre. Key partners for the future of this cluster include Brimbank City Council, the University of Melbourne, Victoria University and Western Health.

The Western Centre for Health, Research and Education is a collaborative project between Victoria University, the University of Melbourne and Western Health, where training and research will be carried out.

THE PHYSICAL CLUSTER: TRANSIT AND BUILDING AN INNOVATION CLUSTER

The cluster has the potential to build a critical mass of tertiary education, health-related training, health care, and retail and professional services jobs, as well as facilitating private investment. There are around 14,600 jobs in the cluster. This could grow significantly as the cluster is positioned well to take advantage of Melbourne's largest residential growth corridor, and as the existing key health and education facilities grow and other businesses join the cluster.

The Metro Tunnel will provide a 15-20 minute train commute to the CBD and a direct link from the cluster to the south-eastern suburbs. Level crossing removals will further improve access to the cluster, and regional train services from Geelong, Ballarat and Bendigo will pass through the cluster at Sunshine railway station.

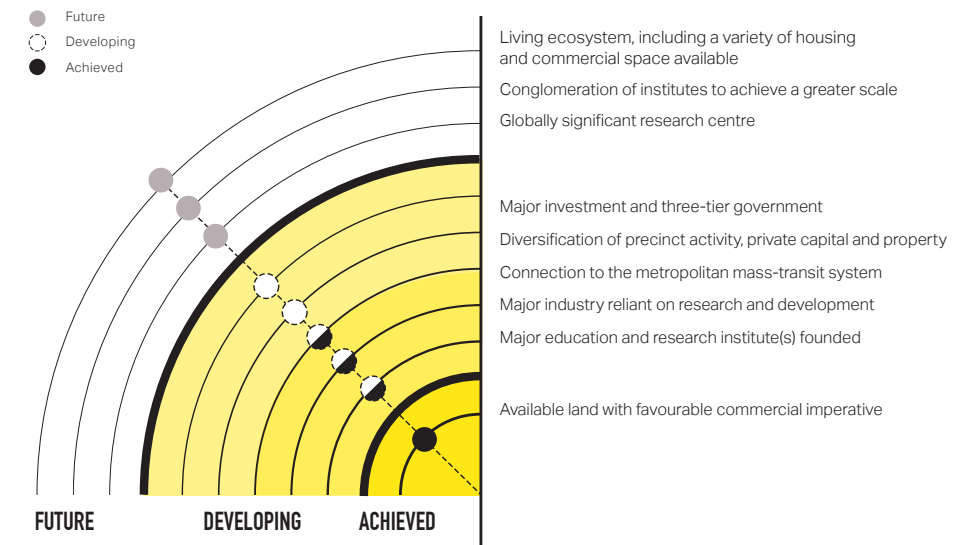
A RESILIENT SYSTEM:

ATTRACTING AND RETAINING KEY TENANTS AND GLOBAL TALENT

Perhaps the largest challenge with Sunshine is the current perception of it as a desirable workplace for highly skilled workers. This, however, belies its current two-fold advantage: low land costs; and emerging services infrastructure that is yet to be fully defined. While far from a 'clean slate', it does offer the bones on which to build a resilient economic and social set

of relationships: focused compact urban streetscapes; and waste, power and water distribution systems that provide reliable and flexible supply to an emerging EIC.

EVOLUTION TIMELINE *How the cluster has matured and an indication of its next critical steps*



Bendigo

As a key regional city in Victoria, and while only ranked 18th by population in the country and behind Geelong and Ballarat in Victoria, Bendigo boasts two important attributes: a very high proportion of residents work in the city as opposed to travelling to Melbourne; and the local council have been very focused on gathering a range of data on how their city operates. These two attributes are enhanced by a focus on independent, locally sourced financing and strong support by local government and business to develop innovation and foster a range of employment opportunities. As such, Bendigo is a strong contender as a regional EIC.

A STRONG FOUNDATION: GOVERNANCE, LEADERSHIP AND COLLABORATION

During and after the Victorian Gold Rush of the 1850s-60s, Bendigo played a major role in supporting the colony's (then state's) prosperity and presence on the global stage. Had it not been for Bendigo and Ballarat, the Magnificent Melbourne of the 1920s would not have been one of the wealthiest cities in the British

Empire. Since this time, Bendigo has partly suffered the fate of much of regional Australia, however. But through strong governance, a strong sense of confidence and entrepreneurial spirit, Bendigo now stands as a relatively self-contained city in regional Victoria.

THE PHYSICAL CLUSTER: TRANSIT AND BUILDING AN INNOVATION CLUSTER

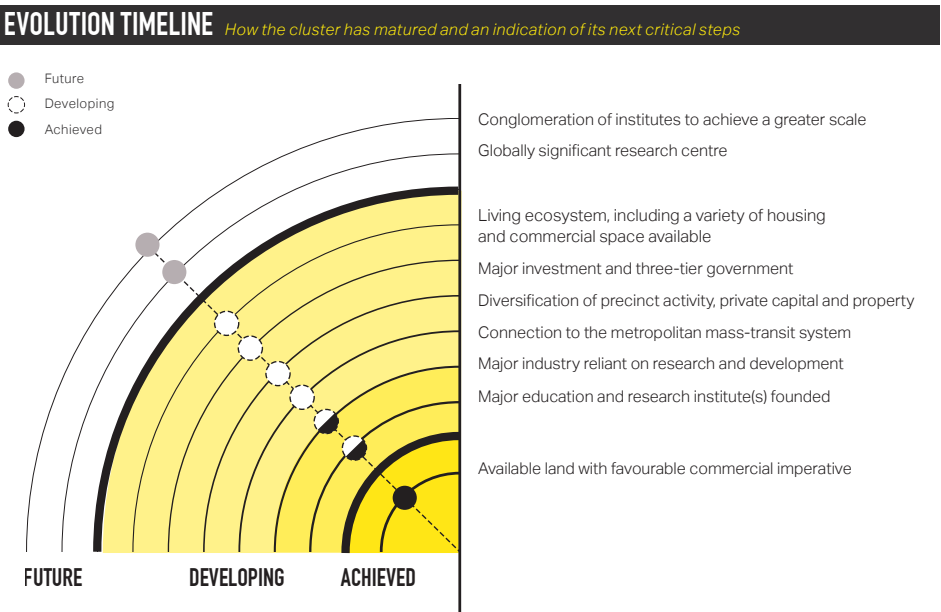
Bendigo's biggest challenge is preparing its communications and transport systems for the next development of its employment areas to the west of its CBD. The city enjoys a reasonable heavy rail link to Melbourne and has a developing internal transit system. While

it also enjoys a well-set-out city centre, the density of businesses, institutions and research and development organisations drops away significantly as you move out of the city centre.

A RESILIENT SYSTEM: ATTRACTING AND RETAINING KEY TENANTS AND GLOBAL TALENT

A predominant strength of Bendigo is its existing local community. The social structure and identity of Greater Bendigo will play heavily in its favour when defining itself as an innovation centre of national significance. The presence of Bendigo Bank's headquarters, plus a number of cultural institutions and the city's ability to successfully develop local business to drive its economy means

that Bendigo has developed strong community leaders, who in turn have fostered strong working relationships with the state and federal governments.



KEY RECOMMENDATIONS FOR SUCCESSFUL EMPLOYMENT AND INNOVATION CLUSTERS

RECOMMENDATION 1

A 'ONE WINDOW'
INNOVATION
CONCIERGE

Create a 'one window' innovation concierge that can provide referrals and advice for all levels of government seamlessly.

RECOMMENDATION 2

A FLEXIBLE PLANNING
FRAMEWORK

Set out an appropriate planning framework, which can be suitably tailored, for the physical spaces comprising Victorian Employment and Innovation Clusters, all the while taking into account the potential advantages that could result from the 'bump factor' and the need to maintain and enhance affordability in both the commercial and residential property markets.

RECOMMENDATION 3

HIGH-QUALITY
URBAN DESIGN AND
ARCHITECTURAL
APPLICATION

Ensure that sound urban design principles are consistently applied to the development of the clusters. The Office of the Victorian Government Architect and similar peak design bodies should be engaged at an early stage to assist with the development of holistic and realistic urban outcomes.

RECOMMENDATION 4

SETTING MEASURABLE
PERFORMANCE
TARGETS

A framework with agreed Key Performance Indicators should be designed to help the policy-makers and the community understand the state of the innovation cluster, its evolution over time, and any gaps that might require government support/intervention.

05

RECOMMENDATION 5

PLANNING FOR
MELBOURNE AS
A COLLECTION
OF COOPERATING
CLUSTERS

Support the model of Melbourne as a 'collection of clusters', each specialising in one or two industries, and provide each with support tailored to its unique level of maturity and diversity.

RECOMMENDATION 6

PROVIDING
FINANCIAL AND
ECONOMIC SUPPORT

Provide sufficient finances and resources to build the necessary level of infrastructure required by EICs.

RECOMMENDATION 7

CREATING AN
ECONOMIC
'MEGA-REGION' WITH
ADJACENT CITIES

Support the creation of a globally competitive mega-region, based on Melbourne and Sydney and taking in other significant cities in south eastern Australia. The federal government should encourage Victoria, New South Wales, Queensland and the Australian Capital Territory to urgently begin discussions on how the cities of Melbourne, Sydney, Brisbane and Canberra, plus their nearby regional centres, can cooperate for mutual benefit. This cooperation could be incentivised in some way by the federal government.

RECOMMENDATION 8

FLAUNTING YOUR
TALENT, SHOWING
YOUR INNOVATION AND
CONNECTING WITH
ALL MELBURNIANS

Ensure that the innovation of each cluster is 'on show'. Overt demonstrations of innovation, whether organisational or technological, all need to be able to be 'seen' and experienced by people in the cluster, not locked behind closed doors.



06

CONCLUSION

Despite being faced with unprecedented challenges from technology, as well as economic and demographic trends, Victoria is exceptionally well placed to benefit from innovative disruption, provided we make the right decisions and implement smart policies.

The people who took part in AECOM's workshops displayed remarkable passion about how Melbourne and Victoria can foster a more-prosperous society for the benefit of all Victorians. This report is our contribution to this important dialogue.

Our recommendations are aimed at helping government policy-makers and planners, and the business and development communities to take action that will strengthen our state and its communities in the global innovation competition.

As outlined in our report, there is an opportunity for Victoria — primarily, but by no means only, Melbourne — to create a framework supporting clusters that can be competitive with the best in the world. Visionary leadership, excellent governance, enhanced coordination and cooperation, world-class transit infrastructure, and appropriate policy frameworks can provide a real step up in our efforts to attract the best and brightest — the global innovators — and the jobs and prosperity that come with them.

The opportunity is there.
Will we seize it?

ENDNOTES

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- 2 Katz, Bruce and Julie Wagner, "The Rise of Innovation Districts: A New Geography of Innovation in America", Brookings Institution, May 2014, p.10. See: www.brookings.edu/wp-content/uploads/2016/07/InnovationDistricts1.pdf
- 3 Startup Victoria, Mapping Victoria's Startup Ecosystem, p. 21. See: https://startupvictoria.com.au/Startup_Victoria_-_Ecosystem_Mapping_Report_2017.pdf
- 4 *ibid.* p.4.
- 5 StartupAUS, Crossroads: An action plan to develop a vibrant tech startup ecosystem in Australia, 1 Dec. 2016, p. 113. See: <https://startupaus.org/document/crossroads-2016/>
- 6 Katz and Wagner, Brookings Institution, pp.3-4.
- 7 Innovation and Science Australia (2016), Performance Review of the Australian Innovation, Science and Research System 2016, Commonwealth of Australia, Canberra. "There is substantial evidence that Australia is poor at translating and commercialising its strong research base. International data suggests that collaboration between the research and business community is weak, and mobility of people between academic and business careers is low." p. xiii. See: www.industry.gov.au/Innovation-and-Science-Australia/Documents/ISA-system-review/Performance-Review-of-the-Australian-Innovation-Science-and-Research-System-ISA.pdf
- 8 According to the Global Innovation Index 2017 report, Melbourne ranks 60th in the world and second in Australia, after Sydney, with 1,799 patents filed (Table 1: Cluster Ranking, p. 172), with Monash University the top patent filer, and pharmaceuticals the most important field of technology in which patents were registered (Table 2: Cluster Characteristics, p. 175). See: www.globalinnovationindex.org/
- 9 QS Top Universities. See: www.topuniversities.com/university-rankings/university-subject-rankings/2017/pharmacy-pharmacology. And as reported in *The Guardian*: www.theguardian.com/education/2017/mar/08/qs-world-university-rankings-2017-pharmacy-and-pharmacology
- 10 Van Mead, Nick, *The Guardian*, "China's Pearl River Delta overtakes Tokyo as world's largest megacity", 28 January, 2015; See: www.theguardian.com/cities/2015/jan/28/china-pearl-river-delta-overtake-tokyo-world-largest-megacity-urban-area; and, Citiscope, China's Pearl River Delta cities are forming a vast megalopolis, 25 September, 2014. See this at: www.citiscope.org/citisignals/2014/chinas-pearl-river-delta-cities-are-forming-vast-megalopolis
- 11 The Honourable Malcolm Turnbull, MP, Prime Minister of Australia, and The Honourable Angus Turner, MP, Assistant Minister for Cities and Digital Transformation, Foreword to the Smart Cities Plan, Australian Government, Department of the Prime Minister and Cabinet, 2016, p.3.
- 12 For example, According to speedtest.net's Sept. 2017 index, Australian internet speed is currently only 54th in the world. Cited in the Crossroads report 2017, p.108. See: www.abc.net.au/news/2015-01-12/australian-internet-speeds-rank-44th-in-the-world/6012570
- 13 The Economist Intelligence Unit, "China's infrastructure leap", 12 February 2016. See: www.eiu.com/industry/article/1573938941/chinas-infrastructure-leap/2016-02-24
- 14 StartupAUS, 2016 Crossroads report, p.110.
- 15 Australian Bureau of Statistics, Annual Population Change – Year Ending 31 March 2017. See: www.abs.gov.au/AUSSTATS/abs@nsf/Lookup/3101.0Main+Features1Mar%202017?OpenDocument
- 16 In 2015-16, the latest for which statistics are available for Melbourne, the Australian Bureau of Statistics' Regional Population Growth, Australia, 2015-16 document stated that the city added 107,800 people. See: www.abs.gov.au/AUSSTATS/abs@nsf/Lookup/3218.0Main+Features12015-16
- 17 Lehrer, Jonah, *The New Yorker*, "Group Think", January 30, 2012. See: www.newyorker.com/magazine/2012/01/30/groupthink

18 Katz and Wagner, Brookings Institution, p.7.

19 It is also noteworthy that one of the recognised leaders in fostering startups, the city of Berlin, is following this strategy, as pointed out by Christine Christian in Joseph Brookes' article, "Berlin the new San Francisco for technology", The Australian Financial Review, Special Report on Trailblazers, 31 October, 2017, p. S4, where she said of Berlin's initiatives, "One of those initiatives was simply a matter of cohabitation. By putting researchers and corporations in the same physical space, it "forced them to work together" and produced more instances of collaboration and innovation". See: www.afr.com/news/special-reports/trailblazers/berlin-the-new-san-francisco-when-it-comes-to-technology-20171027-gz9uul

20 Florida, Richard, University of Toronto, 'TORONTO, ON: The City and Me' online lecture, hosted on Sep 18, 2017. See: https://alumni.utoronto.ca/events-and-programs/toronto-city-and-me?utm_content=buffer862cc&utm_medium=social&utm_source=linkedin.com&utm_campaign=buffer

21 The report can be downloaded here: <https://startupaus.org/document/crossroads-2016/>. See Recommendation 6 on p. 13, with more detail on p. 60-61 and 140-144.

22 Florida, Richard, University of Toronto, 'TORONTO, ON: The City and Me' online lecture, hosted on Sep 18, 2017. https://alumni.utoronto.ca/events-and-programs/toronto-city-and-me?utm_content=buffer862cc&utm_medium=social&utm_source=linkedin.com&utm_campaign=buffer. Dr Richard Florida highlighted that a lot of US multinationals are now paying more attention to Toronto.

23 For a discussion of changes to streamline Canada's visa system, see: www.smh.com.au/small-business/startup/canada-launches-fasttrack-visa-program-to-lure-top-technology-talent-20170613-gwpz6d.html. In addition, Canada leads the OECD countries in retaining international graduates. Blackmore, Jill et al, Deakin University, Australian International Graduates and the Transition to Employment, p.10. See: www.deakin.edu.au/_data/assets/pdf_file/0010/365194/international-graduates-employment.pdf and, at a time when Australia is known to be tightening its immigration

system, Canada has recently made additional changes to welcome more students and provide them with a path to citizenship: www.nytimes.com/2017/01/26/world/canada/international-students-canadian-citizenship.html

24 Draft Fishermans Bend Framework (2017). See: www.fishermansbend.vic.gov.au/_data/assets/pdf_file/0023/87071/Draft-Fishermans-Bend-Framework-LR.pdf

25 Infrastructure Victoria, Victoria's Draft 30-Year Infrastructure Strategy, October 2016, p.135.

26 ibid. See 11.4.4, p. 132.

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Tim leads AECOM's Melbourne Cities program, which seeks to unlock critical urban infrastructure opportunities within the city. Through the application of independent research, Tim is passionate about driving broad, integrated strategies that tap hidden value, attract people and investment, and overcome financial and operational challenges for the benefit of the community. Tim has worked on significant national and international integrated developments and masterplanning projects in Australia, Asia, the Middle East and Europe. He has built a team focused on developing forward-thinking urban policy and development strategies that underpin world-class infrastructure and enhance the environment, equity, and economy of our cities.

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ABOUT AECOM

Whether it is helping cities to prioritise capital asset reliability, plan for climate adaptation, protect assets or provide for sustainable economic development, we see the opportunity to not just build resilience but achieve brilliance. We believe that cities positioned to excel in this time of global change are pursuing broad, integrated strategies to tap hidden value, celebrate ecology and culture, attract people and investment, and overcome financial and operational inefficiencies. These are brilliant cities. Brilliant cities aren't just smart. They are visibly vibrant and delightful. They shine.