



**Australian Government**  
**Department of Industry,  
Innovation and Science**



# **Statement of Principles for Australian Innovation Precincts**

Place-Based Partnerships Building  
on Competitive Strengths

October 2018

# Contents

Executive summary .....	3
The Committee's findings .....	4
The response .....	6
Aims of the Statement .....	6
Principles.....	7
Strategic direction .....	8
Next steps .....	8
Vision .....	9
Background .....	10
The national consultation process.....	10
What are innovation precincts? .....	11
Evidence supporting place-based innovation ecosystems .....	14
What are the benefits of precincts? .....	14
Increased collaboration .....	14
Sustainable economic growth .....	18
How are leading economies successfully using place-based innovation? .....	21
What factors drive successful precincts? .....	24
Physical, networking and infrastructure assets .....	26
Good government policies .....	30
What are the failure factors of precincts? .....	33
Findings of national consultations .....	35
How is Australia currently doing place-based innovation? .....	40
Existing government initiatives .....	41
Australian Government .....	41
State and territory governments .....	48
Local governments.....	49
The aims of this Statement .....	51
The four principles of the Statement .....	54
Next Steps.....	66
Call to action .....	66
Australian Government commitments .....	67
Conclusion.....	70

# Executive summary

The Australian Government wants to foster economic growth, community development and sustainable job creation through higher levels of collaboration, research commercialisation and innovation – in the form of both innovative entrepreneurship, and innovation within existing businesses.

Domestic and international evidence shows that innovation precincts are of increasing importance in driving business and economic growth, and levels of collaboration and innovation. Australia is well placed to capitalise on these trends, for several reasons:

- Our universities, researchers and science infrastructure are world-class
- We are well recognised for our success in place-making, which has contributed to the high ranking of many Australian cities on measures of liveability
- We have a range of competitive industry sectors which provide a foundation to drive economic growth and create quality jobs.

In response to this opportunity, the Government established a University Precincts Advisory Committee (the Committee) to consult and provide advice on whether a national innovation precincts strategy is needed and if so, what form Government action might take.

Based on the findings from national consultations, and advice from the Committee, the Australian Government has developed this flexible Statement of Principles, rather than implement a formal, prescriptive national strategy. The consultations reinforced the view that there is value in having a Statement that provides non-prescriptive guidance on best-practice with encouragement of bottom-up leadership to drive precinct development.

Furthermore, consultations indicated that the Statement should target 'innovation precincts' instead of 'university precincts', as its focus should not be restricted to encouraging the co-location of businesses on university campuses. The Statement therefore considers place-based innovation ecosystems more broadly.

This Statement of Principles for Australian Innovation Precincts recognises that:

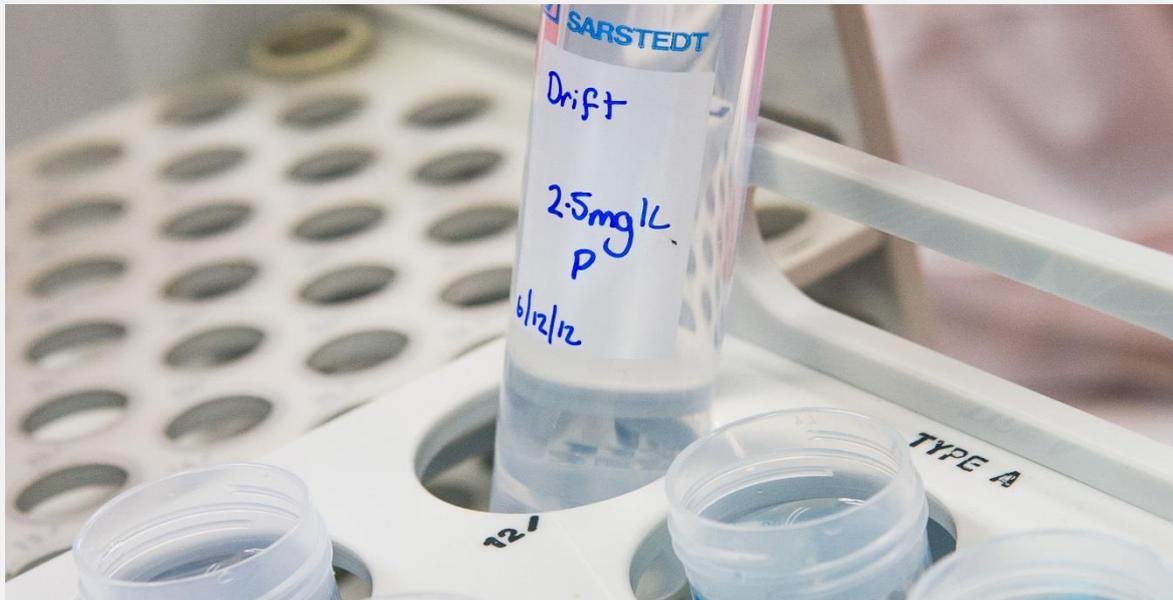
- there is a broad range of existing guidance available on precinct development;
- state and local governments, universities and businesses usually play the leadership role in precinct development;
- there are already many active, emerging and planned innovation precincts; and
- there are a broad range of existing Australian Government initiatives, particularly recent changes to research block grant funding and research impact measurement, that directly and indirectly support innovation precinct development.

This Statement of Principles is intended to foster improved precinct development by clarifying the role of the Australian Government, and aligning and informing inter-related activities and future planning by businesses, the research and education sector, and governments at all levels who are seeking to develop precincts.

## The Committee's findings

- There is strong evidence innovation precincts improve collaboration and innovation outcomes that contribute to business and economic growth.
- Exemplar innovation precincts are diverse; but they share common strengths, comprising physical, networking and economic assets.
- There are many existing and planned innovation precincts in Australia that frequently facilitate collaboration, multidisciplinary research and innovation. However, the scale of many of these innovation precincts is much lower in Australia than in comparable developed countries in North America or Europe, and their full potential is arguably less widely understood among participants.
- Many existing Australian Government, state and territory and local government initiatives support collaboration, and in turn support innovation precincts. Governments also play an important role in funding research and the training of highly skilled researchers.
- Effective place-making is essential for precinct development. This means that for state and territory governments, and local governments, relevant initiatives can include measures not traditionally associated with research and innovation, such as changes to planning laws, transport infrastructure development, and improvements to the public realm.
- These government contributions are having a positive impact, but there is a risk that policy fragmentation within and across governments could limit the advancement of innovation that is place-based and innovation precincts as a shared goal.
- Whilst acknowledging the crucial role of governments at the state and territory level and local level in providing local leadership for precinct development, stakeholders indicated the Australian Government should play a greater role coordinating and communicating policy on place-based innovation and collaboration initiatives, such as innovation precinct development initiatives.
- There is broad stakeholder support for a non-prescriptive national Statement of Principles encompassing innovation precincts on and off university campuses.
- Consultations indicated that stakeholders felt it was essential that innovation precincts were integrated into surrounding communities and into local, regional, national and international networks and supply chains.
- Stakeholders see this approach as a flexible and effective way for all levels of government to begin considering how to best align their activities, and to help innovation precincts access advice and guidance to realise their potential and achieve greater scale, visibility and economic impact.

## World-class precinct: Melbourne Biomedical Precinct, inner metropolitan Melbourne



The [Melbourne Biomedical Precinct](#) is one of the world's leading clusters of research, education, industrial and clinical organisations, and has one of the top three concentrations of biomedical research in the world, with more than 10,000 life scientists.<sup>1</sup>

Melbourne Biomedical Precinct is home to leading institutions and organisations including the University of Melbourne, Monash University, CSIRO, CSL Limited, Royal Melbourne Hospital, the Bio21 Institute, the Walter and Eliza Hall Institute and Biomedical Research Victoria.<sup>2</sup>

Embedded within the precinct is the R&D headquarters of CSL, Australia's leading biotechnology company, in partnership with the Bio21 Institute at the University of Melbourne. The physical facilities are currently being expanded and this will facilitate the strengthening of research links between CSL and University of Melbourne researchers, and other partners across the precinct. There has been more than \$5 billion in new public and private investments into the precinct in recent years.

<sup>1</sup> Royal Melbourne Hospital, '[Melbourne Biomedical Precinct](#).'

<sup>2</sup> [Plan Melbourne](#) Metropolitan Planning Strategy 2014.

## The response

In response to these findings, the Australian Government is launching this national Statement of Principles and committing to work towards a future where innovation precincts are an integral part of the broader national innovation system by 2030.

The Australian Government will also work to align its existing initiatives to remove barriers to innovation precinct development. This includes better aligning industry, innovation and science policy; regional policy and City Deals; and Austrade efforts to market Australia as an innovative country.

The Australian Government will also continue to monitor the impact of recent reforms, and ongoing innovation precinct development, and to consider the need for further policy interventions if gaps and market failures become apparent.

Nevertheless, the Australian Government recognises that ultimately, local-level participants must provide the primary impetus for innovation precinct development.

Local leadership by industry, research and education sectors, plus facilitation and long-term support from state and local governments is key to successful innovation precinct development. Local leadership is necessary to:

- identify regional competitive strengths;
- set a vision and achieve consensus around a development strategy; and
- ensure research, education and training addresses industry and community needs.

If all stakeholders take steps to foster place-based innovation and collaborative local, regional and national networks in line with this Statement, we can utilise Australia's world-class assets to realise our full growth potential and secure a prosperous future.

## Aims of the Statement

This Statement of Principles will provide the necessary guidance to:

1. foster industry–research collaboration;
2. ensure initiatives effecting innovation precinct development align with the Australian Government's agenda for increasing innovation and collaboration;
3. connect stakeholders locally, nationally and internationally; and
4. facilitate local leaders' access to the best available evidence on developing and running an innovation precinct.

The Statement balances high-level guidance on best practice while encouraging bottom-up leadership. It promotes locally driven innovation precinct development based on local needs, competitive strengths, and innovation potential.

## Principles

The Statement is based on four core principles.

- 1 Local leadership:** Local leadership should drive precinct development that targets real market opportunities and innovation potential, measured by clear key performance indicators, to promote growth.
  - 1A** Precinct planning should be guided by local leaders in industry (and/or other end-users of research), research, education, and the broader community.
  - 1B** Precincts should build on local strengths and resources, and pursue real market opportunities and innovation potential as identified by credible industry partners.
  - 1C** State and local governments can have an important role in convening local stakeholders and facilitating long-term collaborative precinct planning. They also have a role providing supportive policy settings (e.g. allowing collaborative commercial activity on Crown land where universities operate), land planning and infrastructure, and other services.
- 2 Removing barriers and aligning policy:** All stakeholders should work to remove barriers and disincentives to collaboration and precinct development, and promote alignment across existing programs.
  - 2A** The Australian Government, state and territory and local governments (and their agencies) should work to ensure their policies and activities align to promote collaboration and innovation, including through precinct development. In particular, place-based funding initiatives should aim to align with national collaboration initiatives, and industry, innovation and science priorities and strategies.
  - 2B** Governments, precinct leaders, knowledge brokers, and the research sector should communicate collaboration-enabling reforms and funding opportunities to end-users.
  - 2C** Governments, university networks and relevant communities of practice should identify and facilitate access to evidence on best practices in precinct development.
  - 2D** Large organisations, especially governments, large firms, universities, research organisations, TAFEs and hospitals, should ensure their procurement practices promote better collaboration and innovation.
- 3 Building capability and connections:** All stakeholders should encourage the development of capability and connections for their precinct; including person-to-person connections, and precinct integration into surrounding communities and local, national and international networks and supply chains.
  - 3A** Precinct leaders should work to grow their expertise and capability in developing effective precincts, and precinct partners should develop their collaborative capability.
  - 3B** Precinct leaders and partners should foster a culture of collaboration, encouraging person-to-person connections within precincts; and take steps to integrate precincts into surrounding communities and local, national and international networks and supply chains.
  - 3C** Precinct leaders and partners should work to improve transparency and precinct marketing capability domestically and internationally.
- 4 Skills development:** Precinct leaders and partners should coordinate strategy on skills and improve student employability and entrepreneurialism.
  - 4A** Precinct partners should develop coordinated skills strategies.
  - 4B** Precinct leaders, partners and governments should encourage student entrepreneurship and engagement with end-users, including firms and community groups.

## Strategic direction

The Statement contributes to the [National Innovation and Science Agenda](#) and also supports the [Smart Cities Plan](#), election commitments to develop innovation precincts, the [Industry Growth Centres Initiative](#), the [Australian Space Agency](#) and [Regions 2030](#). It also aligns with recommendations outlined in Innovation and Science Australia's [Australia 2030: Prosperity Through Innovation](#) plan. The Statement forms a key part of broader realignments within our national innovation system to accelerate improvements in industry–research collaboration, and research translation and commercialisation.

Australia enjoys a reputation as the 'lucky country,' enjoying prosperity thanks to natural endowments and good fortune. This Statement of Principles, as part of the Government's broader innovation agenda, will encourage the right settings for precinct development as an important part of Australia's innovation system, making it easier for us to make our own luck and secure this prosperity into the future.

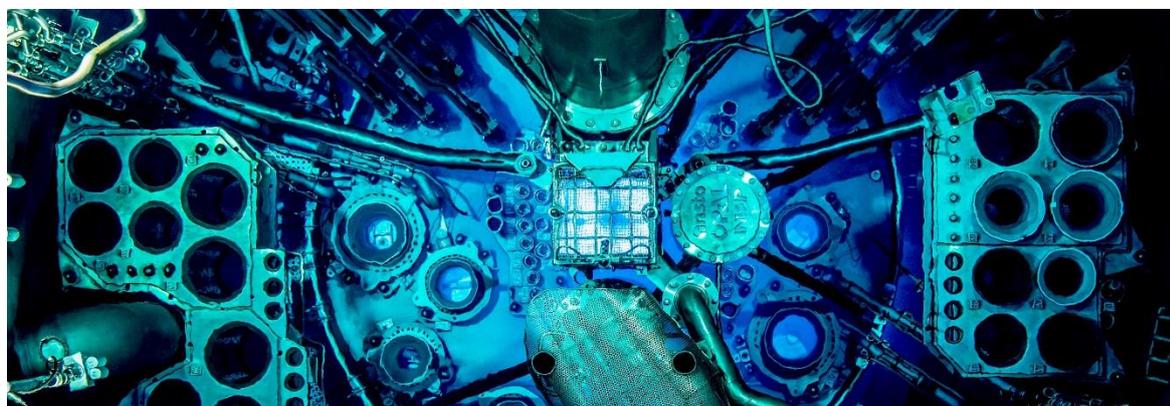
## Next steps

For this Statement to have an impact, all stakeholders will have to work to drive innovation precinct development that aligns with the principles. This will include the Australian Government committing to:

1. Considering the value of innovation precincts and place-based innovation in driving economic growth, including regional and urban development;
2. Facilitating innovation precincts to better market their capabilities both domestically and internationally;
3. Working with state and territory governments to improve the complementarity of existing arrangements, and leverage networks, expertise and experience;
4. Encouraging precincts to share best practice approaches through communities of practice;
5. Considering end-user and industry knowledge, innovation and research needs; and encouraging similar activity at a local level; and
6. Monitoring the impacts of reforms, ongoing precinct development and best practice adoption; and considering the case for further policy intervention.

On behalf of the Australian Government, the Department of Industry, Innovation and Science will maintain a web presence and central contact point to coordinate activity and engage with interested stakeholders and across all levels of government on issues relating to innovation precincts. The Department will also consider emerging issues and challenges, and coordinate policy in partnership with other agencies.

The Australian Government calls for similar commitments from other stakeholders, particularly leaders of existing and emerging innovation precincts, and state and territory governments.



**Caption:** OPAL Reactor.

Source: Australian Nuclear Science and Technology Organisation.

## Vision

By 2030 innovation precincts will have a valued role:

- as an integral part of the broader national innovation system;
- facilitating successful collaboration between researchers and end users, particularly industry, including small and medium-sized enterprises (SMEs);
- encouraging entrepreneurship, research translation and commercialisation;
- providing amenities, infrastructure and opportunities for students, researchers, end users and the wider community; and
- driving regional economic growth, community development and sustainable job creation by improving innovative capacity, productivity and competitiveness.

To drive progress towards this vision in the short to medium term, all stakeholders should work to ensure that:

- research, industry, government and community stakeholders understand the value innovation precincts play in encouraging end-user focussed collaborative research, commercialisation and innovation to improve competitiveness and productivity, and in fostering economic growth and community development;
- precinct leaders access guidance and take a collaborative, long-term and strategic approach to precinct development based on local competitive strengths, innovation potential and needs;
- Growth Centres and other sector organisations participate in developing innovation precincts and industry clusters, connecting and fostering collaboration between precincts, informing research priorities and linking end users with suitable research expertise;
- innovation precincts successfully articulate and market their research capabilities and competitive strengths to end users, including by obtaining recognised (overseas/international) accreditation to demonstrate capability to undertake professional end-user focussed collaborative research;
- universities and innovation precincts effectively highlight their competitive strengths in marketing materials, and work with Austrade and state organisations to promote Australia as an innovative country with global research capability to attract international students and investment; and
- governments consider the value of research organisations, education institutions and innovation precincts in regional and urban development and structural adjustment initiatives.

# Background

## The national consultation process

In late 2016, the University Precincts Advisory Committee (the Committee) was established to provide strategic advice on the need for a national strategy on innovation precincts, as a key mechanism to promote economic growth through collaboration and innovation.

The Committee reviewed domestic and international evidence on the economic benefits of place-based innovation ecosystems such as innovation precincts. This included research by the [OECD](#), the [Brookings Institution](#), [Optus](#), the Australian Office of the Chief Economist<sup>3</sup> and [Innovation and Science Australia](#).

The Committee published an Issues Paper as the basis for six months of national consultations with stakeholders. The Committee engaged with businesses and with peak industry bodies, universities, research organisations and other interested parties. Consultations also extended to other national governments, and a small number of overseas universities. These consultations informed Innovation and Science Australia's work in developing the [Australia 2030](#) plan.

The Committee's considerations were also informed by outcomes from a Department of Industry, Innovation and Science consultation-based research project into the barriers and drivers for Australian SMEs when collaborating with publically funded research organisations.

This Statement of Principles is based on the Committee's research findings, including:

1. international and domestic evidence on the economic and community development benefits of place-based innovation ecosystems such as innovation precincts;
2. evidence on the success factors behind exemplar innovation precincts;
3. stakeholder feedback supportive of a national non-prescriptive Statement of Principles, obtained through the national consultations;
4. a national stocktake of existing and planned precincts; and
5. a review of relevant existing Commonwealth, state and territory and local government measures supporting innovation precincts.

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<sup>3</sup> For example: Office of the Chief Economist, 2015, '[How regional universities drive regional innovation](#)'; Office of the Chief Economist, 2017, '[The role of spillovers in research and development expenditure in Australian industries](#)'.

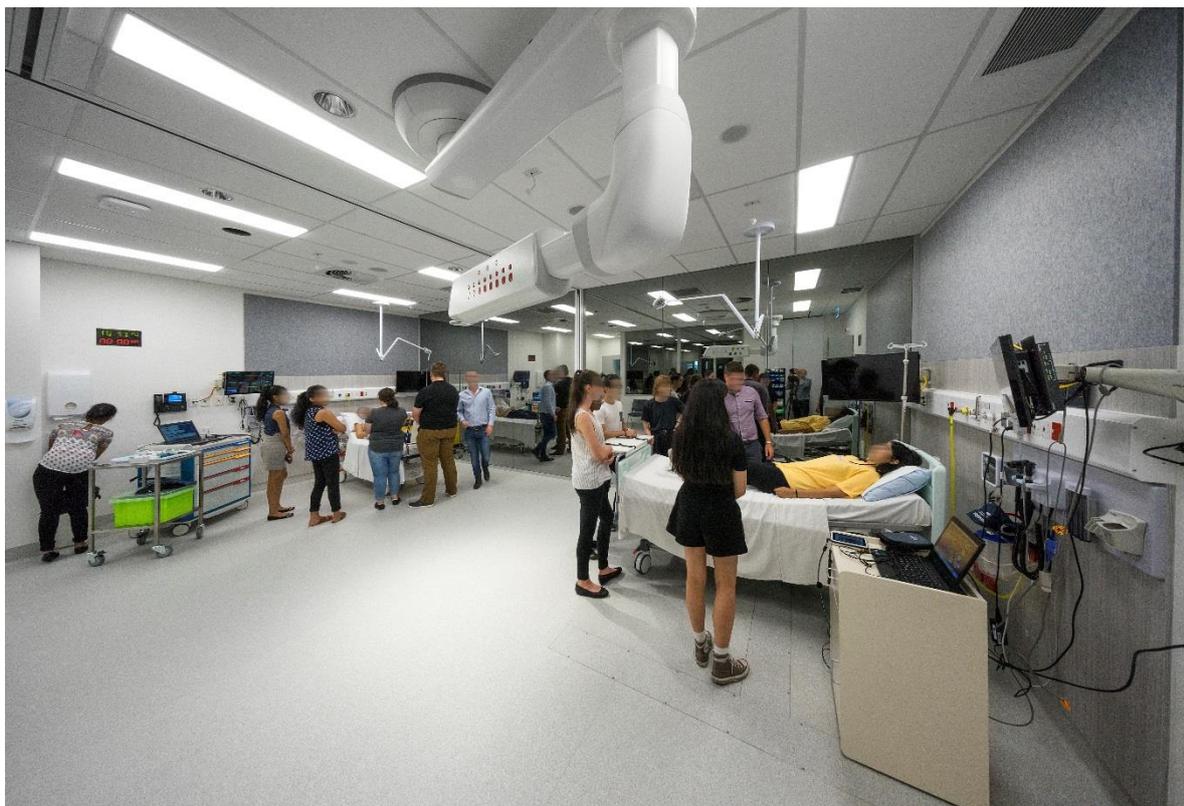
## What are innovation precincts?

This Statement is focused on precincts as a means to drive business and economic growth, by boosting collaboration and innovation – that is, ‘innovation precincts.’ In this context, ‘innovation’ includes both new innovative entrepreneurship and startup activity, and innovation by established businesses and sectors to improve their competitiveness and long term sustainability, including tapping into existing knowledge.

The terms ‘Innovation Precincts,’ ‘Innovation Districts,’ ‘Innovation Hubs,’ and ‘Technology Parks’ are used to describe forms of geographic clustering of knowledge-based activity. There are many legitimate definitions. In this Statement of Principles, the term ‘innovation precincts’ encompasses all of these variations. Innovation precincts function as place-based innovation ecosystems. Their common features include a:

1. widely understood geographic extent (even though boundaries are often fuzzy);
2. shared sense of identity amongst those involved; and
3. strong set of formal and informal networks and partnerships between people and businesses, researchers, education and training organisations and government.

Precinct development entails building partnerships and engaging with the surrounding community. This includes social enterprises. Key partnerships involve industry, research and education and can enhance the vibrancy of the local community. Innovation and research centres are often key elements of a precinct. Health innovation precincts form partnerships between universities, hospitals and health providers. Precincts can drive productive people-to-people relationships, but are also reliant on these relationships to be successful.



**Caption:** Adelaide Health and Medical Sciences Facility.

Source: The University of Adelaide.

## Active precinct: Randwick Health and Education Super Precinct, metropolitan Sydney



The [Randwick Health and Education Super Precinct](#) includes an expansive health precinct, major university campus, innovation network and international networks.

The Super Precinct is the largest health, innovation and education precinct in NSW, with over 13,000 staff and more than 50,000 students. It includes a major university, four hospitals (Prince of Wales, Sydney Children's, Royal Hospital for Women and Prince of Wales Private) and nine medical research institutes spanning neuroscience, mental health, cancer and other fields, including the [Australian Institute of Health Innovation](#).

Within the Precinct, UNSW also hosts [Student Entrepreneurship](#) (a comprehensive suite of programs across all stages of startup and entrepreneurship; and one of the largest student startup programs nationally); the [Michael Crouch Innovation Centre](#) ; [TechConnect Global](#) (to engage with SMEs); and a range of facilities for engaging with industry.

The UNSW campus is also home to the largest Engineering Faculty, several national Cooperative Research Centres and Australian Research Council Centres of Excellence with significant industry engagement in fields including [quantum computing](#), [solar cells](#), [low-carbon living](#), [climate extremes](#) and [sustainable materials](#).

The Super Precinct is recognised as a key economic centre in the Greater Sydney Commission (GSC) district plans and in the Sydney Metropolitan Strategy, and has the potential to be world-scale in terms of size and impact. Over \$1 billion in capital infrastructure development will occur in the Precinct over the next three years. The UNSW Torch Innovation Precinct (discussed below) will form a key element of the Collaboration Area encompassing the Precinct.

## Emerging precinct: **UNSW Torch Innovation Precinct, metropolitan Sydney**



Since its inception by the Ministry of Science and Technology in 1988, the 'China Torch Program' has created over 150 high tech zones across China. The Torch Program is responsible for over 11 per cent of China's entire GDP, more than 10 per cent of the country's total industrial value and close to 16 per cent of China's total foreign exports.

The UNSW Torch Innovation Precinct is the first to be established outside of China under the Torch Program, and will co-locate businesses from Australia and China with researchers to foster collaboration. The Precinct will be a phased development over ten years.

Phase One consists of securing over \$100 million in contracts from Chinese industry partners on collaborative research projects and development of incubator space. Phase Two consists of the development of a new innovation precinct adjoining the main UNSW campus, with start-up, incubator, industry and research engagement areas.

It takes many years for a sophisticated, richly networked innovation precinct to develop. However, in time, a highly evolved precinct can achieve:

1. a recognised position as an important regional, national and preferably international value creation hub within its technology/competence base;
2. a growing concentration of precinct partners, and growth in complementary enterprises in the region's wider innovation ecosystem;
3. rich and growing networks beyond the precinct's geographical bounds, including relationships with other precincts/clusters within the sector/technology area and beyond.
4. well-established collaboration mechanisms and practices locally, regionally, nationally and preferably internationally; between industry, non-government organisations (NGOs) and R&D and educational institutions; as well as business-to-business and supply chain collaboration;
5. Systematic collaboration on radical cross-sectoral, multidisciplinary innovation, supported at the precinct level by clearly expressed operational strategies; and
6. trust among the precinct partners, and a shared understanding of how partnerships deliver value and recognition of the precinct's importance.

## International precinct: Research Triangle Park, Durham, North Carolina

Founded in 1959 by the [Research Triangle Foundation](#), North Carolina's Research Triangle Park is the largest research park in the United States. The Park is approximately three kilometres wide and 12 kilometres long, with an area totalling over 2,800 hectares. Original anchor research institutions include [Duke University](#), the [University of North Carolina](#) and [North Carolina State University](#).

Since attracting its first company in 1960, the Park has grown to host more than 200 companies and 50,000 people with expertise in fields such as electronics, telecommunications, biotechnology, chemicals, pharmaceuticals and environmental sciences. [North Carolina Central University](#), home of the Biomanufacturing Research Institute and Technology Enterprise Centre for Excellence, has also become a fixture of the Park. Each year, universities in this region attract more than US\$300 million in R&D investment from industry.

## Evidence supporting place-based innovation ecosystems

### What are the benefits of precincts?

Evidence on innovation precincts both domestically and internationally demonstrates that successful precincts encourage **increased collaboration** between researchers and end users, fostering higher levels of innovation, knowledge transfer, and commercialisation to drive **sustainable economic growth and job creation**. Precincts also deliver business and social benefits. This Statement of Principles focuses on how precincts can advance national priorities around increasing collaboration and economic growth.

### Increased collaboration

Collaboration partners, such as firms and researchers, expend significant energy seeking each other out. The geographical concentration of innovation precincts provides greater opportunities to form deep and trusting relationships between businesses, researchers, educators and the community.

## Active precinct: **Westmead Innovation District, metropolitan Sydney**



Westmead is one of the largest health, education and research precincts in Australia, delivering health services to almost 10 per cent of the national population. Precinct partners include the Western Sydney Local Health District, Sydney Children's Hospitals Network, Westmead Private Hospital, Westmead Institute for Medical Research, Children's Medical Research Institute, University of Sydney and Western Sydney University.

Westmead currently produces more than \$1.9 billion of economic output, provides more than 18,000 specialised high-value jobs, (with employment expected to grow to 30,000 jobs by 2036), and education and training for 3,400 students.

University of Sydney and Western Sydney University have major plans for expansion around Westmead. These expansion plans are expected to cost a total of almost \$1 billion, and will see tertiary student numbers at Westmead grow to approximately 10,000 over the next decade. The Precinct partners' vision for the future focuses on improving community health and wellbeing through deep collaboration in areas including diagnostic sciences and technologies, preventative and sustainable health, patient centred care and translational health (translating research findings into better patient outcomes).

Precincts can provide both formal mechanisms for seeding and cementing new relationships – such as hackathons, networking events and network organisations – and informal opportunities for people to meet through chance interactions. Precincts can facilitate sharing of resources (e.g. research equipment and conference facilities). They help people meet to share ideas, challenges and opportunities, and they help businesses to access talent.

Industry–research collaboration is a key Australian Government priority, and offers advantages for both sectors.

### *Benefits for the research and education sector*

For the research sector, closer collaboration with industry through precincts can offer:

- challenging problems to solve and an understanding of the problems that business face, which can stimulate new research;
- a high-trust environment in which person-to-person connections between researchers, entrepreneurs and businesses can be built into long-term strategic collaborative relationships (as opposed to one-off, narrowly defined engagements);
- employment and work-integrated learning opportunities for students, including PhD students, and for post-doctoral researchers;
- a receptive and entrepreneurial community for commercialisation that provides access to development, engineering, manufacturing and marketing expertise; and
- funding to carry out research.

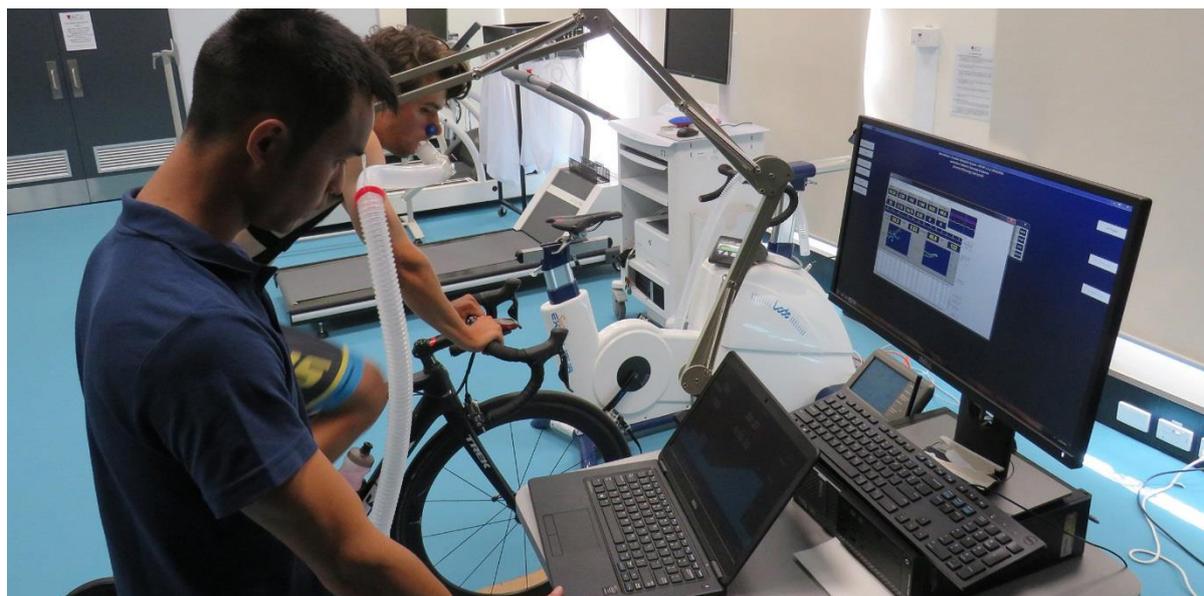
Researchers and educators can minimise barriers to engaging with industry and end-users by participating in precincts and marketing their capabilities to an informed general audience.

### *Benefits for end-users of research*

For end-users of research, such as businesses, partnering with universities and other research and education institutions, including research organisations, TAFEs and hospitals, can offer:

- access to highly talented people with expert knowledge and skills, particularly skilled graduates and PhD students, as both collaborators and potential recruits;
- a high-trust environment in which person-to-person connections between researchers, startups and businesses can be built into long-term strategic partnerships;
- connections to local, national and international networks of researchers and other professionals;
- access to scientific equipment, infrastructure and research capability;
- streamlined access to technology, patents, and emerging research findings; and
- showcasing how to translate research into products, services, and new processes, and their practical application.

Lowering barriers for industry and end-users to engage with researchers is a key opportunity for improving Australia's innovative capability, and for higher economic and jobs growth.



**Caption:** School of Exercise Science, Australian Catholic University.

Source: Australian Catholic University.

## SME Collaboration: Innovation Connections helped Meneghello Galvanizing to reduce the costs of treating waste chemicals by partnering with CSIRO



Meneghello Galvanizing is an operation that had a significant barrier to good business.

The treatment of waste chemicals was costing the business \$500,000 a year. With support from the Entrepreneurs' Programme's Innovation Connections element, Meneghello and CSIRO Minerals Processing Group in Perth teamed up to find a solution.

Meneghello Galvanizing uses chemical tanks which are required for the cleaning, pickling, pre-treatment and coating of steel or dipped steel components. However, Meneghello had to seek chemical analysis from its Melbourne-based chemical additives supplier to ensure its chemical tanks were appropriate for use. It would typically take 4-5 days from providing a sample to getting back the analytical data.

Meneghello needed to quickly develop and utilise simple-to-use and reliable in-house analytical techniques, to monitor tank compositions. The pickling tanks were of particular importance. Ken Green from the Entrepreneurs' Programme's Innovation Connections, assisted in connecting Meneghello with CSIRO Minerals Processing Group in Perth. Together, they worked on finding rapid and accurate analysis on solutions such as caustic cleaner, acid, and stripper.

The result was optimisation of the cleaning, pickling and surface preparation steps while minimising the amount of waste solutions generated. Through the collaboration, Meghhello also developed a method to regenerate pickling solution by the removal of iron and zinc.

## Sustainable economic growth

The key driver in the formation of innovation precincts is that entrepreneurs, firms and researchers benefit from locating near each other. This is often described by 'agglomeration economics,' linked to the idea of economies of scale and network effects.

From this angle, innovation precincts are agglomerations of entrepreneurs, jobs, capital and innovation that stimulate new and higher levels of person-to-person connectivity, idea sharing, collaboration and innovation, which produces benefits for the broader economy.

Empirical evidence confirms these sustainable economic benefits. In Australia, organic clusters of businesses and research institutions – such as those around universities, [Cooperative Research Centres](#) (CRCs) and the CSIRO – are shown to support innovation, entrepreneurship and jobs growth in urban and regional areas. For example, in NSW, businesses in organic clusters have a job creation rate 2.25 times faster than that of other businesses.<sup>4</sup>

### Active precinct: University of Wollongong Innovation Campus, regional New South Wales



Since opening its doors in 2008, the University of Wollongong's Innovation Campus has grown to generate over \$2 billion in economic activity and employ over 1,500 people.<sup>5</sup> The Innovation Campus' specialisations include materials, sustainability, health and maritime innovation. Situated on a 33 hectare greenfield site, this beachside precinct houses 39 business tenants, ranging from major multinational corporations to SMEs.

University of Wollongong's iAccelerate business incubator is located within the precinct, facilitating opportunities for research students to brainstorm ideas, connect and create. The iAccelerate Centre has already assisted more than 65 businesses and created more than 140 startup jobs in the greater Illawarra community.

The University of Wollongong also operates the Advantage SME program to support SME collaboration with researchers, through activities including student placements in SMEs and providing matched funding.

<sup>4</sup> Jobs for NSW, 2016, [Jobs for the Future](#).

<sup>5</sup> Illawarra Mercury, 2016, ['UOW Innovation Campus wins Emerging Research Park award.'](#)

## Me3D at iAccelerate



University of Wollongong Alumna, Leanne Connolly, joined researchers Fletcher Thompson and Matt Connolly at the Australian Institute for Innovative Materials to develop a 3D printing business, Me3D. The business designs and manufactures affordable 3D printing equipment to meet the needs of the Australian education sector and helps create jobs at Greenacres Disability Services.

With the backing of close ties with University of Wollongong's iAccelerate program and funding from the sales of the 3D printers, the company moved from selling 20 to 200 printers a month.

The most recent [OECD Cluster Scoreboard](#) compared the performance of 80 specialised clusters across OECD countries. It revealed average employment growth rates exceeding all European country averages, with 13.5 per cent growth in advanced manufacturing clusters and 19.4 per cent growth in knowledge-intensive services clusters over a four-year period.

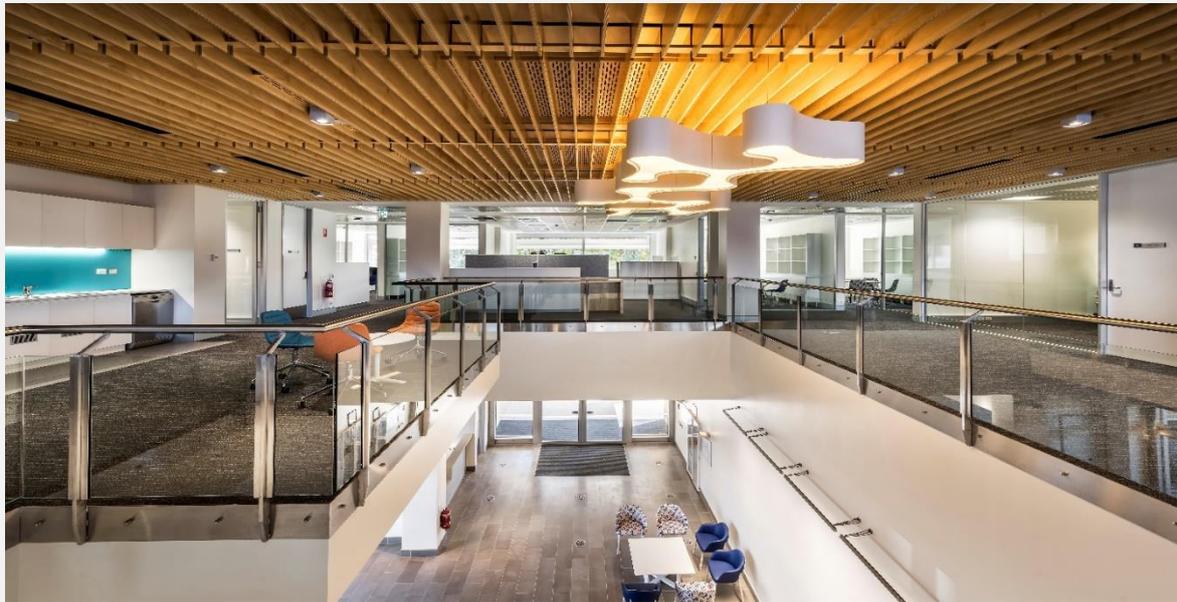
Precincts also support cutting-edge innovation by linking businesses to researchers on the forefront of knowledge creation. Business collaboration on innovation is associated with a 70 per cent increase in the likelihood of new-to-world innovation and a 32 per cent increase in the likelihood of new-to-Australia innovation.<sup>6</sup> As such, innovation precincts facilitating collaboration through co-location have the potential to improve the performance of Australia's innovation system.

Finally, innovation precincts are creating amenities and value for surrounding communities and can contribute to urban renewal projects. Brookings notes that successful innovation precincts have been key to the re-imagining and remaking of underutilised urban spaces, particularly former industrial areas, in cities such as Boston, Portland and San Francisco.<sup>7</sup> Mixed-use precincts establish concentrated spaces where housing, commercial areas, and amenities such as parks and plazas are accessible by the surrounding community.

<sup>6</sup> Office of the Chief Economist, 2014, [Australian Innovation System Report](#).

<sup>7</sup> Bruce Katz and Julie Wagner, *The Rise of Innovation Districts*, Brookings 2014, <https://www.brookings.edu/essay/rise-of-innovation-districts/>

## Active precinct: Indian Ocean Marine Research Centre, metropolitan Perth



The Indian Ocean Marine Research Centre at the University of Western Australia (UWA) Crawley Campus is building Australia's international marine research status through innovative research into one of the world's least explored marine environments – the Indian Ocean.

This multi-disciplinary partnership brings together CSIRO, the Australian Institute of Marine Science, The Western Australian Marine Science Institution, the Fisheries Division of the Department of Primary Industries and Regional Development and UWA's Oceans Institute to work together on topics ranging from climate change to physical oceanography, and conservation strategies to modelling coastal dynamics.

The purpose-built facility provides the foundation for world-class research with high-tech labs, specialised equipment and collaborative work spaces, including the OceanWorks space funded by Woodside. Partners have access to cutting-edge technologies through a number of UWA-led facilities within the precinct, such as the National Geotechnical Centrifuge Facility - the only one of its kind in Australia housing one of the largest centrifuges in the world.

## How are leading economies successfully using place-based innovation?

Landmark and national research infrastructure is a natural focal point around which an innovation precinct can develop and plays an important role in attracting researchers and firms to co-locate and collaborate. Such precincts can deepen the application and impact of research infrastructure, further capitalising on significant investments made in research infrastructure, usually by government. Nevertheless, when developing precincts, local precinct leadership can improve their ongoing sustainability by identifying and pursuing diverse investment sources.

Many international jurisdictions facilitate research–industry collaboration through place-based innovation initiatives and regional innovation policies; include supporting innovation precincts.

Some key initiatives include [Manufacturing USA](#) (United States of America), the [Carnot Institutes Network](#) (France), [Leading Edge Clusters](#) (Germany), [Enterprise Zones](#) (United Kingdom) and [‘Torch’ Science and Innovation Parks](#) (China).

### International precinct: **TusPark, Wudaokou, China**

‘TusPark’ is a shorthand for Tsinghua University Science Park – the original business park in what is now a pan-China network of business parks under the TusPark banner, hosting hundreds of local and multinational companies (including tech giants Google and Microsoft), tens of thousands of employees, and generating tens of billions of RMB in tax revenue. It was founded in 1994 adjacent to the Tsinghua University campus in Wudaokou, China.

TusPark modelled itself on the Stanford Research Park, founded in 1951, which contributed to the birth of Silicon Valley. The model for the business parks encourages entrepreneurship through incubators, entrepreneurship training and access to angel investors. TusPark is now pursuing ways to integrate its business parks into the global innovation ecosystem, including a joint business incubator with the US and branches in the UK, US, Russia, Israel and elsewhere. TusPark has signed a cooperation agreement with UNSW and is participating in strategic planning surrounding the UNSW Torch Innovation Precinct.

In Europe and the US, organisations in regional and national innovation ecosystems typically share an understanding of ‘how things are done’ within that system, where they fit and how their activities align with regional and national goals. This is informed by a mix of top down vision and goal setting (e.g. through innovation and sector policy) and bottom up entrepreneurship, and planning and consensus building across regions, industry clusters and precincts. Industry, researchers and educators focus on collaboration, innovation and identifying their collective innovation potential as important values. These communities see working better together as a key policy and cultural priority.

## World-class international precinct: **The Advanced Manufacturing Park in Sheffield, United Kingdom, and the Advanced Manufacturing Research Centre**



Sheffield's Advanced Manufacturing Park is an advanced manufacturing technology park, providing world-class advanced manufacturing technology solutions for industry.

Research and manufacturing undertaken within the Park focuses on materials and structures, covering metallic and composite materials; typically used in precision industries including; aerospace, automotive, medical devices, sport, environmental and energy, oil and gas, defence and construction.

The Park is home to world-class research and manufacturing organisations, such as: the University of Sheffield's Advanced Manufacturing Research Centre; Castings Technology International; Sandvik Coromant; the Welding Institute's Yorkshire Technology Centre and the Nuclear Advanced Manufacturing Research Centre.

The Advanced Manufacturing Research Centre (AMRC) within the Park is part of a broader network of specialised UK High Value Manufacturing Catapult Centres. Around 70 companies have joined the AMRC as members, from global aerospace giants such as Boeing, Rolls-Royce, BAE Systems and Messier-Bugatti-Dowty, to local small businesses. The centre also works with hundreds of other manufacturers on specific research projects.

Through the AMRC, firms get access to specialist expertise in machining, casting, welding, additive manufacturing, composites, designing for manufacturing, testing and training. This helps firms innovate quickly to meet customer needs, cut costs and secure global access to the best ideas and the best talent.

## Brookings' guidance to Sheffield on developing its innovation precinct

- Appoint a taskforce representing the university, city government, and the private sector to take stock and identify development actions.
- Collect evidence, identify assets, and set a vision.
- Design development strategies supported by a strong land-use plan.
- Partner with all levels of government.
- Realize the benefits from sharing best practices, cross-promotion, and collaboration with other emerging innovation precincts.

Source: <https://www.brookings.edu/opinions/an-advanced-manufacturing-innovation-district-grows-in-sheffield-england>

Getting communities working together through establishing networks are typically low-cost innovation and collaboration initiatives, driven by local leadership, and which build on existing competitive strengths and facilitate multidisciplinary research.

These international examples of initiatives demonstrate that precinct development and place-based innovation policies can:

1. improve transparency and highlight what public and private research capabilities are available nationally to industry (this may include marketing research organisations that demonstrate science excellence and a willingness to work with industry);
2. highlight success to drive cultural change;
3. simplify engagement for SMEs, who have more difficulty accessing effective networks, risk capital, research and technology, education and vocational training, and marketing skills;
4. provide a flexible approach for partnerships between industry, researchers, educators and governments in order to help people and organisations work better together to:
  - drive applied research,
  - disseminate new knowledge;
  - demonstrate the value of new technology and approaches,
  - facilitate industry standards development; and
  - develop education and training programs that align with industry need;
5. simplify collaboration on multidisciplinary projects;
6. facilitate knowledge transfer into a region through connections with national and international partners and create concentrations of knowledge; and
7. attract greater foreign investment (as international partners and investors can use clusters to identify local opportunities and integrate them into research and business supply chains more readily) to drive job and economic growth.

These initiatives are inclusive of SMEs; remove barriers to firm, sector and regional competitiveness; and provide opportunities for work-integrated learning and research activities, which can improve the employability and entrepreneurship skills of students and researchers.

Innovation precincts' activities typically include developing strategies and technology roadmaps, and highlighting industry skills and knowledge needs to research, education and training providers.

These policies have delivered sustainable local economic development; improved community amenity and jobs through better targeted local investment, research and education; and increased collaboration, commercialisation, investment, productivity and international competitiveness.

## The productivity slow-down in developed countries

The productivity slowdown in developed countries has resulted from a slowing of the pace at which innovations spread, rather than a slowing in the rate of frontier innovation (e.g. most firms are not taking on productivity enhancing innovations as quickly as before). There is a need to increase the spread of innovation to all firms (while maintaining competitive markets). Innovation precincts aid knowledge diffusion and represent part of the solution to slowing productivity growth.

Source: Martin Neil Baily and Nicholas Montalbano (2017), 'Clusters and Innovation Districts: Lessons from the United States Experience'; OECD (2016), 'Future of Productivity'.

Australia has an opportunity to adapt these policies to our national context, leveraging existing strengths, including:

1. our world-class research (e.g. quantum computing) and well developed education system; and
2. sectors of competitive strengths such as: advanced manufacturing (including defence and aerospace); cyber security; food and agribusiness; medical technologies and pharmaceuticals; mining equipment, technology and services; oil, gas and energy resources; and financial services.



**Caption:** RMIT Advanced Manufacturing Precinct.

Source: Royal Melbourne Institute of Technology.

## What factors drive successful precincts?

The literature on precinct success factors is vast (see the **Select Bibliography** list). This Statement of Principles focusses on the most general factors, as appropriate to a document with national scope.

Different actors can and should consult the literature to identify more detailed guidance and frameworks appropriate to their situation. For example, state governments may seek guidance specific to their local policy responsibilities for infrastructure and planning. Precinct facilitators may seek guidance on best practice in governance and brokering research–industry connections.

Example communities of practice that can assist in accessing and sharing good practice in precinct development include [TCI](#), the [University Industry Innovation Network](#), the [European Secretariat for Cluster Analysis](#), the [MIT Regional Entrepreneurship Acceleration Program](#), and the [Network of Corporate Relations Officers](#).

## World-class international precinct: the micro-nanotechnology and microelectronics cluster in Grenoble, France



Grenoble is internationally recognised for innovation and science. The micro nanotechnology and microelectronics cluster ‘emerged’ from a critical mass of competitive strengths; including infrastructure, talented people and research capability.

Grenoble hosts four national research institutes: CEA-Grenoble (French Alternative Energies and Atomic Energy Commission), CEA Leti, CNRS (National Centre for Scientific Research) and INRIA (National Institute for Research in Computer Science and Automation). There are also many leading European universities, infrastructures and labs in the region, including the European Synchrotron Radiation Facility, the ILL (Institute Laue-Langevin) Neutrons High Flux Reactor, the European Molecular Biology Lab and the IRAM (Milimetric Radioastronomy Institute).

The region’s innovation ecosystem has gradually become more formalised. In 2005, the clustering organisation Minalogic was founded for the digital technologies sector of France’s Auvergne-Rhône-Alpes region. The cluster supports innovation by facilitating networking, fostering collaborative R&D, and providing companies with personalized assistance throughout all phases of business growth. The products and services developed by its members address all industries, from ICT and healthcare to energy and advanced manufacturing.

The cluster received funding and accreditation as one of seven French Government-designated ‘world-class clusters’. Some key features of the cluster include a market-driven focus, multidisciplinary research, and public-private partnerships and collaboration between industry, science, education and training, and government. The cluster benefits from some 21,000 research jobs, some 60,000 higher education positions, and roughly 97,800 industry jobs.

Minalogic today boasts more than 400 members, including 350 companies. The cluster reports having certified nearly 519 projects that have secured total government funding of €836 million of the more than €2 billion in total R&D spending these projects represent. The 67 projects completed to date have resulted in 56 products (either on the market or in the process of being prepared for market release) and generated €3.6 billion in revenue.

## Physical, networking and infrastructure assets

Many factors are conducive to innovation precincts' success. One of the most consistent findings is the need to harness and build upon existing competitive strengths and identifying innovation potential. Local leadership is an important mechanism for ensuring this happens.

Research by the Brookings Institution commissioned by the Department of Industry, Innovation and Science found that:

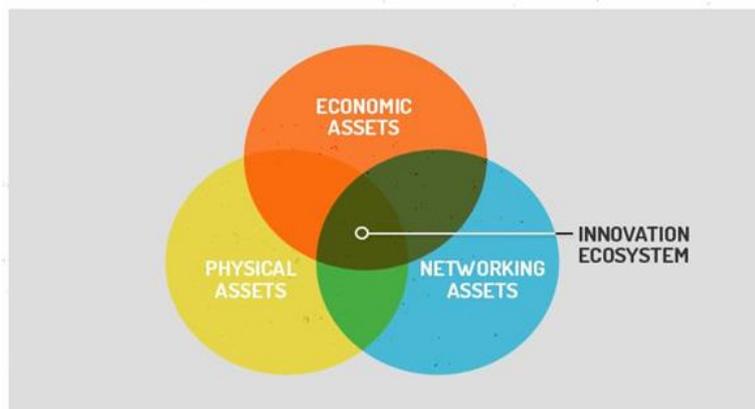
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*“Successful innovation districts are not started from scratch but instead are built on a pre-existing economic and physical base. Policymakers or other leaders can help transform a barren landscape into fertile ground, but a seed must be available that can grow to fruition.”<sup>8</sup>*

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Different categorisations of precinct success factors and building blocks are available, and each has advantages and disadvantages. The framework developed by the Brookings Institution is valuable for this document because of its generality. In the Brookings framework, successful precincts are built on three types of local assets (**Figure 1**):<sup>9</sup>

1. **Physical assets:** for example infrastructure, including public transportation, digital infrastructure, shared work and lab spaces, specialised research infrastructure, and community spaces.
2. **Networking assets:** for example community connectedness, such as established social capital and local communities of practice.
3. **Economic assets:** for example existing firms, a diversity of complementary industries, a skilled workforce, research organisations and education institutions, natural resources, existing markets and amenities that can attract innovative businesses and skilled workers.



**Figure 1** Comparative strengths of high-performing precincts.

Source: Bruce Katz and Julie Wagner, *The Rise of Innovation Districts*, Brookings, 2014.

Prominent ‘anchor tenants’ (such as large firms and universities) are important as both economic and networking assets. Their commitment lends stability and scale to a precinct. Such tenants, or other prominent and well-connected actors, can serve as ‘champions’ for the precinct – another important networking asset.

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<sup>8</sup> Martin Neil Baily and Nicholas Montalbano, for the Brookings Institution. ‘Clusters and Innovation Districts: Lessons from the United States Experience.’ July 2017.

<sup>9</sup> Bruce Katz and Julie Wagner, *The Rise of Innovation Districts*, Brookings 2014, <https://www.brookings.edu/essay/rise-of-innovation-districts/>;

Bruce Katz, Jennifer S. Vey and Julie Wagner, *One Year After: Observations on the Rise of Innovation Districts*, Brookings June 24, 2015, <https://www.brookings.edu/research/one-year-after-observations-on-the-rise-of-innovation-districts>. Additional references are cited in these two papers.

## Active precinct: Macquarie Park Innovation District, metropolitan Sydney



Macquarie Park is a key employment hub in Sydney, which generates \$9.8 billion in gross domestic product annually, and is growing at 6.8 per cent a year.<sup>10</sup> Macquarie Park is currently home to 180 multinational and 200 small-to-medium-sized businesses, a teaching hospital, Macquarie University and over 85,000 employees and students.<sup>11</sup> Macquarie Park is a hub for pharmaceutical, technology, electronics and telecommunications industries, and has the potential to be a global-scale precinct.

The Macquarie Park Innovation District started in 2015, led by founding partners Abbott, AMP Capital, the City of Ryde, Johnson & Johnson, Konica Minolta, Macquarie University, National Australia Bank, the NSW Government and Optus. These partners sought to improve the physical and economic assets that underpin innovation by leveraging and building on the Park's existing resources, and to foster connections between park members and the community.

The Innovation District opened its purpose-built Macquarie University Incubator in August 2017, funded by a \$7 million Macquarie University commitment and a \$1 million NSW Government investment towards the development of a broader Macquarie University Business Innovation Centre. This funding was provided under the NSW Government's Boosting Business Innovation Program. 16 startups are currently operating in the Incubator.

The number of employees in the District is set to more than triple in the next 10 years. Residential development will continue to increase – and the startup ecosystem will intensify with the creation of new incubators, collision spaces and programs.

<sup>10</sup> Macquarie Park [Investment Prospectus](#).

<sup>11</sup> Office of the Chief Economist, 2016, '[Australian geography of innovative entrepreneurship](#)'; Macquarie University, 2016, '[Macquarie Park partners launch global destination for innovation](#).'

## Collaboration between Macquarie University and Cochlear through the Hearing Hub

Cochlear's global headquarters and manufacturing operations are located in a purpose built facility on the Macquarie University campus. This is located opposite the Hearing Hub.

An initiative of Macquarie University, the Hearing Hub brings together some of the country's leading hearing and healthcare organisations, including the Hearing Cooperative Research Centre, to collaborate on world-leading research projects.

To date, more than 200 Macquarie University students have completed placements with Cochlear for academic credit. This is across disciplines as varied as engineering, psychology, law and accounting. A number of joint research programs are co-funded each year in areas of mutual interest.

There are several further success factors behind thriving innovation precincts and clusters. Different frameworks will go into more or less detail about success factors, depending on the target audience. The following general success factors were adapted from the Brookings Institution research commissioned by the Department of Industry, Innovation and Science; and other frameworks may complement these general principles with further detail.

1. **Core competency:** Precincts need to build on core regional competencies in industry, research, education and government.
2. **Access to funding:** Most new precincts obtain initial support from federal, state and territory or local governments, or from a non-profit. However, over time, it is important that precincts attract private sector funding.
3. **A strong local leader or leadership team:** Leadership can come from a university, industry or government. Leadership is needed to recognise the benefits a precinct can bring; develop a strategy; gather the different resources needed and build a partnership between industry, research and education actors (and possibly government).
4. **Highly qualified researchers:** Precincts need highly qualified researchers who can respond to industry challenges.
5. **Skilled workforce:** The pace of economic development is slowed where the required skills are not sufficiently available. This highlights the importance of local educational infrastructure, especially the tertiary and vocational education and training (VET) sectors.
6. **Sophisticated demand:** Innovative products and services must find demand that can make use of the technology embodied in them.
7. **Supportive regulatory environment:** Land and infrastructure must be available.
8. **Business capabilities:** Guidance and management capability development are important for startups.
9. **Idea sharing:** Most successful precincts have fostered a culture of sharing ideas and capabilities, especially in their early formative years.
10. **Amenities:** It is helpful for precincts to offer a quality lifestyle that will attract talented people.
11. **Infrastructure:** Physical assets such as labs and incubators are important, as are transportation links. Zoning should favour economic development but also create attractive places to live and work.
12. **Good Public Policy:** (see below).

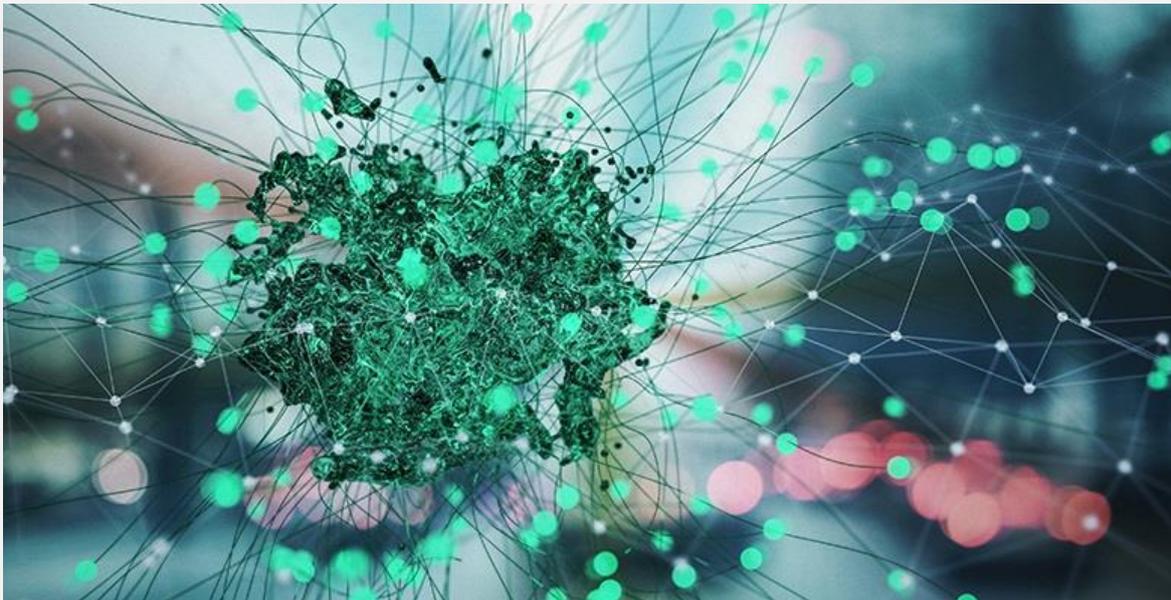
Precinct leaders may also seek out further practical advice. For example, The Brookings Institution's international research has also provided [additional insights](#) for local leaders when planning precincts and managing precinct activities.

## Research Infrastructure: High Performance Computing

The Australian Government has invested significantly in high performance computing (HPC) capability through two complementary and interconnected facilities on the east and west coasts of Australia: the National Computational Infrastructure (NCI) at the Australian National University and the Pawsey Supercomputing Facility (Pawsey) at Australian Resources Research Centre (ARRC) in Technology Park (near Curtin University).

HPC users are diverse and these facilities enable impactful research in priority sectors such as energy and resources, agriculture, genomics and cybersecurity. These facilities support strong national networks of research and government organisations, and are important pieces of research infrastructure which anchor surrounding innovation precincts.

## NERA Subsea Innovation Cluster



National Energy Resources Australia, the Growth Centre for Australia's energy resources sector, is working with Subsea Energy Australia to form Australia's first innovation cluster in the oil and gas industry. The cluster will comprise members of Australia's highly experienced subsea inspection, maintenance and repair industry. The cluster will focus its unique capabilities and competence within the sector and work collaboratively to address current and future challenges.

## Good government policies

Good government policies are a success factor for precinct development. Governments play a vital role in supporting several of the success factors already outlined, for example:

1. State and local governments play a key role in supporting innovation precinct development through hospital and infrastructure spending, land use planning, business engagement and facilitation, and regulating Crown land. Infrastructure, in particular transport and communication infrastructure, to connect precincts with the larger economic ecosystem is critical. Proximity and connectivity generates and strengthens the relationships that trigger ideas and builds commitment to produce innovative products and services.
2. Initial financial support is often necessary from government (Australian, state or local government). For example, the Australian Government funds ARC Centres of Excellence, training centres, hubs, CRCs and research infrastructure that can attract researchers and business to collaborate and potentially even co-locate.
3. The Australian Government plays an important role in funding the training of highly skilled researchers, particularly through the Research Training Program (which provided over \$1.01 billion in 2017).
4. Governments also fund research. For example, the Australian Government invested over \$10 billion in science, research and innovation in 2017-18.
5. The Australian Government has created clear new incentives for university researchers to reach out to businesses (and vice versa). State and local governments have provided support for researchers to start their own businesses.
6. Governments often serve as sophisticated customers, including via innovative procurement initiatives, for the products and services developed in a precinct.
7. Governments also help to ensuring a steady pipeline of STEM-educated students, workers and researchers via the education system.



**Caption:** Siemens Skyra 3 Tesla MRI scanner, Monash Biomedical Imaging.

Source: Monash University.

## The Australian Academic Research Network and Genome.One

As anchor tenants, universities ensure that innovation precincts are digitally well-connected to Australia's national research and education network, operated by the Australian Academic Research Network. The AARNet network is an ultra-high speed broadband network that removes technical and commercial barriers to digital-led innovation, such as the collection, analysis and sharing of "big data".

A not-for profit company, owned and operated by Australian universities and the CSIRO, AARNet provides services to not only universities, but also research institutions, schools, TAFEs, galleries, archives, libraries, museums, and government and commercial organisations participating in, or engaged with, the research and education sectors. Through partnerships with commercial carriers, the fibre optic infrastructure which AARNet brings to each university precinct ensures that each precinct is able to meet the needs of organisations through their entire innovation lifecycle from research startup to fully commercial enterprise.

[Garvan Institute of Medical Research](#) is home to the [Kingham Centre for Clinical Genomics](#), a research centre that undertakes large-scale genomic studies and develops new algorithms to extract clinically significant insights from the human genome, which can then be translated into [Genome.One](#), an accredited pathology and health information company based on the St Vincent's precinct, Genome.One draws on and generates large amounts of data to undertake clinical whole genome sequencing and analysis that is necessary for population-scale genomics research and precision healthcare. Genome.One along with other leading health information companies benefit from the availability of AARNet's national network.

Genomic data generated by Genome.One are analysed by the NCI supercomputer at the Australian National University in Canberra, the Garvan Institute and cloud services like Amazon. This is only possible with the large data streams being transported using the AARNet ultra-high speed broadband network. The ultra-high speed broadband network will also improve the capacity of researchers and companies to collaborate with international partners as well as providing their services on the international market.

## The value of key infrastructure: the Australian Synchrotron



The Australian Nuclear Science and Technology Organisation's Australian Synchrotron is a landmark research facility that uses accelerator technology to produce a powerful source of light, a million times brighter than the sun. Research conducted at the facility benefits a diverse range of disciplines and industries including biomedicine and pharmaceuticals, defence, food technology, forensics, manufacturing and resources. For example:

- Researchers from the Walter and Eliza Hall Institute (WEHI), in partnership with biotechnology company, Genentech, and pharmaceutical company, AbbVie, have developed a drug that effectively 'melts away' certain advanced forms of chronic lymphocytic leukaemia (CLL). In clinical trials with Victorian patients, the drug was shown to cure CLL in 20 per cent of treated patients, with 79 per cent experiencing remission. The Therapeutic Goods Administration has now approved the use of Venetoclax for Australian patients.
- Phosphagenics is a Melbourne-based SME that utilised the Small and Wide Angle X-ray Scattering (SAXS/WAXS) Beamline at the Australian Synchrotron to optimise its drug delivery technology known as TPM® (Targeted Penetration Matrix). The research conducted at the facility enabled the internal nanoparticles of TPM® to be optimised, increasing the therapeutic benefit of drug products containing the technology.



For more information: [archive.synchrotron.org.au/news/publications/case-studies/australian-synchrotron-stories](https://archive.synchrotron.org.au/news/publications/case-studies/australian-synchrotron-stories)

## What are the failure factors of precincts?

Some innovation precincts fail. For example, the 'Multifunction Polis' (MFP) was a joint concept developed in the late 1980s by Australia and Japan through a top-down planning process. It envisioned a futuristic high-tech city, originally to be located on the Gold Coast. A site in Adelaide was eventually chosen for the MFP in 1990, but it failed to generate significant public funding or private sector interest and was finally discontinued in 1998.

A better understanding of the necessary success factors for innovation precincts, such as the need for access to sophisticated market demand and the role of deep technological and scientific infrastructure, could potentially have led to better outcomes.

There are also several known 'failure factors' that can sabotage efforts to create a thriving precinct. When creating new innovation precincts, planners should especially avoid:

1. **White elephants:** A precinct is unlikely to succeed if it is started to create prestige for policy makers or government leaders, as opposed to having wide support from stakeholders and businesses who see it as a real commercial opportunity. This does not imply that governments have no role, but it warns governments against initiatives that promise favourable publicity without competitive viability.
2. **Picking winners from the top down:** Policy makers must seek out the judgments of the scientists and business owners/managers on the ground, who have knowledge about the technology the precinct focusses on, regional competitive strengths and the commercial value of the potential precinct.
3. **Real estate plays:** Thriving, synergistic precinct ecosystems are unlikely to emerge when precinct development is treated as just a real estate development by either developers or local councils.

## Building 20, MIT: A modest building with great people can drive amazing innovation



Large prestigious buildings and investments are not always required to drive collaboration and innovation in a precinct. For example, Building 20 at the Massachusetts Institute of Technology (MIT) was a poorly built 'temporary' building that represented a beacon of innovation in America for 55 years.

The building originally housed a laboratory where fundamental advances were made in RADAR during World War II. After the end of World War II, Building 20 served as an incubator for many small MIT programs, research, and student activities for a half-century before it was demolished in 1998.

The building at different times housed the Acoustics Lab, Adhesives Lab, Linguists Department, Guided Missiles Program Office, Lab for Lighting Design (part of the Architecture Department), Office of Naval Research, Model Railroad Club, and Council for the Arts, amongst others.

The high calibre of the people, multidisciplinary focus of the research, and cheap and broad, flat layout of the building encouraged people to get out of their offices, and have long conversations and chance encounters between people working on very different projects. Walls being made out of plywood allowed for easy reconfiguration of the floor space to meet the needs of different and changing projects and experiments over time.

## Findings of national consultations

Stakeholders provided the Committee with comments and feedback generally agreeing with and building on initial research findings contained in the Committee's Issues Paper. There was broad agreement among stakeholders on the value of place-based innovation and collaboration initiatives. Consultations found:

1. Removing barriers created by a lack of transparency for industry and end-users to find partners, simplifying SME engagement with the research and education and training sectors, and reducing barriers to collaboration and multidisciplinary research are priorities for Australia's innovation system.
2. Firms and researchers expend significant energy seeking each other out, and need to build trust before collaborating. This challenge is exacerbated by Australia's geography and tendency to spread research and specialist education capability thinly across the country.
3. Knowledge brokers, facilitators, capability registers and curated networking events can help to simplify this process and help people, businesses and researchers find each other.
4. Co-location of research and business capability within and around innovation precincts is one mechanism to support networking and collaboration. However, co-location within a precinct is a priority for only some firms.
5. A key benefit of many precincts is that they can undertake multidisciplinary research to meet industry needs within one location.

## Medtech and Biotech Mingle Melbourne: Helping Connect and Collaborate



In November 2016, the [RMIT Advanced Manufacturing Precinct](#) hosted a speed-dating session in partnership with [Ribit](#) (CSIRO-Data61's student job platform), and the Medical Technologies and Pharmaceuticals Industry Growth Centre, known as [MTPConnect](#), to connect students with industry.

The structured event allowed for a broad mix of more than 200 talented students to engage one-on-one with over 50 representatives from 30 participating companies. Organisations including CSL, Cochlear, IBM, Telstra Health, and fast-growing companies such as Anatomics and MDI, participated to identify candidates for possible internship opportunities. The company representatives also provided tips and advice on entering the sector, excellent networking opportunities, and coaching on how to present their unique strengths in interviews.

Stakeholders noted that innovation precincts could respond to business challenges by bringing together diverse people to solve problems and undertake multidisciplinary research.

It was acknowledged that place-based innovation approaches are relatively new in Australia, with varying degrees of implementation success. Improved alignment and implementation of these approaches can accelerate the effects of recent reforms to improve research impact, such as [changes to research block grant funding](#), and improve industry–research collaboration and innovation capacity.

Stakeholders also highlighted that universities and research organisations could generate additional revenue through contracted and collaborative research, noting successful industry–research collaborative models such as [Newcastle Institute for Energy and Resources](#).



**Caption:** GRANEX® heat conversion technology pilot scale demonstration unit

Source: The University of Newcastle, Newcastle Institute for Energy Resources.

Although best-practice guidance and communities of practice (often internationally based) are available to support innovation precinct creation, consultations revealed that Australians are using these resources to a very limited degree. Similarly, accreditations that benchmark clustering activity and university engagement with businesses are available, and can be used to market precinct capabilities.

These accreditations are known to and used by few Australian precincts and clustering organisations, apart from the notable exceptions below:

- The University of Adelaide and the University of Wollongong are accredited through the [Accreditation Council for Entrepreneurial and Engaged Universities](#).
- Teams from Melbourne and Queensland have participated in the [MIT Regional Entrepreneurship Acceleration Program](#).
- The South Australian medical devices cluster, MedDev SA has received the Bronze Label of the European Cluster Excellence Initiative from the [European Secretariat for Cluster Analysis](#).

Stakeholders agreed that there was value in having a flexible and non-prescriptive Statement of Principles to focus and align policy approaches across all levels of government, and provide best-practice guidance on precinct development. Stakeholders noted that innovation precincts should be driven by local leadership to take advantage of their regional contexts and align with broader innovation networks and national, state and local policy frameworks.

Many stakeholders also felt that there was benefit in innovation precincts being connected to local, regional, national and international innovation networks to promote collaboration. They emphasised the need for national networks such as the Growth Centres to link capability and industry need across Australia, and to highlight industries' knowledge requirements as targets for collaboration efforts.

The vast majority of Australian firms are SMEs, and so increasing collaboration and innovation across this business demographic has the potential to deliver substantial economic gains for Australia. Universities and research organisations are aware of the importance of this segment of the firm population, and highlight SME engagement in innovation and collaboration initiatives as a key priority.

There was broad recognition, however, that university engagement with SMEs is a challenge, requiring further focus and potential changes in approach. For example, instead of encouraging SMEs to come to their campuses, CSIRO works to make it easy for SMEs to access the right knowledge and expertise, by bringing researchers to businesses through its [SME Connect](#) program and researcher placements and with support from the [Innovation Connections](#) program.

Stakeholders emphasised the need to encourage growth of 'innovation precincts' generally, as opposed to 'university precincts,' so as to not unnecessarily constrain activity to university campuses or exclude broader community activity and social enterprise.

Feedback on the adequacy of current government funding was mixed, with no consensus about the need for further Australian Government funding to incentivise collaboration or precinct development. However, a number of stakeholders noted that available funding could be better targeted and utilised, particularly through aligning activities between different levels of government.

City Deals were highlighted as a useful initiative for leveraging and aligning government activity (for example, through aligning localised investment in research and economic infrastructure). These efforts to align policy and programs can support precinct development, and thereby industry research collaboration, driving innovation, economic growth and regional development.

Stakeholders repeatedly reiterated that recent [changes to research block grant funding](#) and [research impact](#) measurement were important, and were driving significant transformation in the research sector. Furthermore, consultations indicated that all universities were working to increase collaboration with end-users, with many precincts planned or under development.

Consultations indicated support for continuing to monitor the impacts of recent reforms; precinct engagement with existing or new communities of practice; and the progress of precinct development more generally across Australia. If barriers to precinct development and market failures become apparent, stakeholders noted that there may be a case for further intervention by the Australian Government.

## Active precinct: **Swinburne Advanced Manufacturing Precinct, metropolitan Melbourne, and the Advanced Manufacturing Growth Centre**



Swinburne University of Technology is working hand-in-hand with Australian industry, particularly SMEs, to help the advanced manufacturing sector to transform and prepare for Industry 4.0. In support of this goal, Siemens awarded the university's Advanced Manufacturing Precinct and the Manufacturing Futures Research Institute an industrial software grant to digitalise its Factory of the Future.

This initiative will create one of Australia's first fully immersed Industry 4.0 Testlab facilities. Testlabs represent physical spaces for businesses and researchers to come together to trial, explore and showcase Industry 4.0 technologies and processes,

In collaboration with the Advanced Manufacturing Growth Centre, Swinburne University will be part of a network of Industry 4.0 Testlabs. These testlabs prepare businesses to transition to the smart factories of the future. They will also support businesses to improve their skills needed to take advantage of opportunities.

In a parallel development, the Advanced Manufacturing Growth Centre is working with universities and businesses to establish Industry 4.0 'Living Labs', through funding projects developed at these facilities. These involve establishing Industry 4.0 work environments in active businesses to give SMEs the opportunity to tour and experience Industry 4.0 in a working environment. These Living Labs will complement the network of Industry 4.0 Testlabs.

## Active precinct: Monash Technology Precinct, metropolitan Melbourne



The Monash Technology Precinct is Victoria's leading non-CBD hub of employment, economic growth and innovation, and has the potential to be world-class in scale and impact. It employs more than 82,000 people, particularly in healthcare, medical research and advanced manufacturing, and contributes over \$9.4 billion to the Victorian economy each year. Major partners in the cluster include Monash University, the Australian Synchrotron, CSIRO, the Melbourne Centre for Nanofabrication, the Monash Children's Hospital, the Monash Medical Centre and the Monash Enterprise Centre.

The precinct has attracted significant investment from cluster partners, including multinationals such as Bosch, Woodside, Johnson & Johnson and Agilent Technologies, Monash University, and the Victorian and Australian Governments. Among the investments is the \$543 million Victorian Heart Hospital at Monash University, which will provide the world's best in cardiovascular care, research and training and the \$84 million Translational Research Facility at Monash Health. Additionally Monash University is a major investor in capital expenditure and invested \$430 million capex in 2017. The Victorian and Australian governments have both made recent commitments to fund both light rail and heavy rail to service the Precinct.

The Monash Technology Precinct is home to 40% of Victoria's manufacturing industry, and therefore SME engagement is key to the precinct. For example, the [CSIRO Lab22 Innovation Centre](#) 3D printing facility generates large scale SME engagement, with 800 company visits in the past 12 months and Oventus, a Brisbane-based SME, co-located next to Lab22 in order to access the facility to develop its world leading sleep apnoea device. Strong relationships have been formed with SME industry groups such as SEMMA (South East Melbourne Manufacturers Alliance), AMTIL (Australian Manufacturing Technologies Institute Limited) and a consortium of 12 SME companies, called the High Performance Consortium is now co-located in the precinct. In addition, significant global industry partnerships (for example, with GE and Boeing) continue to build the international standing and scale of the precinct.

# How is Australia currently doing place-based innovation?

There is significant activity currently underway by the private sector, the university sector and all levels of government to increase interaction between researchers, business and the wider community. There are around 60 innovation precincts across Australia, with significant investment underway.

Australian innovation precincts are found in metropolitan and regional Australia, and in all states and territories. They cover many industries, and have developed in response to specific opportunities or challenges relevant to local circumstances or industry/research strengths.

## Active precinct: Ultimo–Pyrmont–Surry Hills, incorporating ‘The Precinct’ and the University of Technology Sydney, metropolitan Sydney



Sydney’s southern CBD is an active precinct for startups, creative digital industries, innovation and learning with the potential to be world-class in scale and impact. The University of Technology Sydney (UTS) anchors the precinct, contributing physical infrastructure, research facilities, teaching, community and commercial spaces, amenities, bodies of knowledge and human capital.

The precinct is surrounded by a rich and diverse range of creative industries ranging from startups to co-working spaces and research incubators. Over 70 per cent of industry within a one kilometre radius of UTS are creative industries.

At UTS, programs such as [UTS Startups](#) are growing the number of student startup founders coming out of UTS and entering the wider ecosystem, fueling that crucial talent pipeline for the continued success and growth of the sector.

UTS is building on these strengths by further developing the precinct through its billion-dollar-plus City Campus Master Plan, in collaboration with the ABC, Powerhouse Museum, Sydney Harbour Foreshore Authority and Frasers Park. The Precinct will focus on creative and cultural industries, and is expected to contribute \$3.2 billion to the NSW economy, and generate 670 direct and indirect permanent jobs worth \$44 million in income annually.<sup>12</sup>

<sup>12</sup> <http://www.uts.edu.au/partners-and-community/initiatives/city-campus-master-plan/precinct>

They also vary in maturity. For example, [Technology Park Adelaide](#), centred on the University of South Australia, was established in 1982 and co-locates more than 100 organisations. Other precincts are very young, such as the [University of Tasmania's Centre for Food Innovation](#), founded in 2016 in collaboration with CSIRO and the Defence Science and Technology Group.

Regardless of their level of maturity, innovation precincts are constantly evolving. Innovation precinct development involves building partnerships and trust between industry, researchers, educators and the community, helping people to work better together, and building productive people to people relationships.

CSIRO is working to develop global-scale precincts supported by national research centres. Work is also being undertaken by the Growth Centres to facilitate the development of both virtual and place based clusters within their sectors. For example, each Growth Centre is either co-located or has established collaboration hubs with major universities and the CSIRO.

Despite this activity, almost all of Australia's innovation precincts and regional industry and innovation clusters are small-scale and do not play a significant role compared with other countries.<sup>13</sup> In the Global Innovation Index<sup>14</sup> and Global Competitiveness Index<sup>15</sup> Australia ranks 39th and 40th respectively in terms of cluster development. This indicates that there is more to be done to build clusters and capture their potential future benefits.

## Existing government initiatives

In promoting greater collaboration, the role for government is to get the incentives right, and to bring the right parties together. There are many existing government initiatives to facilitate industry–research collaboration and encourage innovation precinct development.

State and local governments also have policies tailored to their local priorities, and have a significant role in targeting policy towards the specific opportunities and challenges for precincts within their jurisdictions. Noting these policies and initiatives, the Australian Government looks forward to working with state and local governments as appropriate.

The **Resources** section includes more comprehensive lists. Selected examples are below.

### Australian Government

There is significant activity underway to facilitate collaboration at the Australian Government level, including the [Industry Growth Centres Initiative](#), [Entrepreneurs' Programme](#), the [SME Export Hubs Initiative](#), the [Australian Space Agency](#), Australian Research Council (ARC) [Industrial Transformation Research Program](#) (ITRP); [Cooperative Research Centres Program](#); the [Australian Mathematical Sciences Institute National Research Internships Program](#); and CSIRO's [Precincts and Research Centres](#). Support is also provided through incentives for industry to collaborate with [Research Service Providers](#) under the [R&D Tax Incentive](#), and funding under the [National Collaborative Research Infrastructure Strategy](#).

Policy mechanisms, such as the [changes to research block grant funding](#) and [research impact measurement](#) announced under the [National Innovation and Science Agenda](#), and grants to support industry collaboration with the research sector (e.g. ARC [Linkage Grants](#), [Innovation Connections](#) and [CRC-P Grants](#)), are helping to grow a culture of collaboration. Government also funds university infrastructure, research expenses and student education under the [Higher Education Support Act \(HESA\)](#).

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<sup>13</sup> <https://www.industry.gov.au/sites/g/files/net3906/f/performance-review-of-the-australian-innovation-science-and-research-system-isa.pdf>, p. 82.

<sup>14</sup> Cornell University, INSEAD and WIPO, 2016, [Global Innovation Index 2016: Winning with Global Innovation](#).

<sup>15</sup> World Economic Forum, 2016, [Global Competitiveness Report 2015-2016](#).



**Figure 2** CSIRO's Lab22 within the Monash Technology Precinct

Source: CSIRO.

## CSIRO

CSIRO has also taken steps to facilitate the development of innovation precincts and hubs to foster better collaboration between research, industry, and government.

Under CSIRO Strategy 2011-15, CSIRO played a central anchoring role in the development of five major precincts, including through significant funding for infrastructure being provided by the [Science and Industry Endowment Fund](#) for three of these:

- [Australian Manufacturing and Materials Precinct](#) (Monash Technology Precinct – **Figure 2**)
- [Ecosciences Precinct](#) (Brisbane)
- [Human Life Sciences Precinct](#) (Melbourne Biomedical Precinct)
- [National Agricultural and Environmental Sciences Precinct](#) (Canberra – **Figure 3**)
- [National Resource Sciences Precinct](#) (Perth)

CSIRO also continues to develop research centres of national standing and scale where there are concentrations of business units, research expertise and infrastructure. These are summarised below:

- Carbon Fibre in Geelong: CSIRO has expertise co-located with [Deakin University](#), and industry partners including [Carbon Nexus](#), [Quickstep](#) and [Carbon Revolution](#).
- e-Health in Herston, Brisbane: The [Australian E-Health Research Centre](#) is a joint venture between CSIRO and Queensland Health.
- Food, Health and Nutrition in Adelaide: CSIRO has research expertise at the [Waite Research Precinct](#) and [South Australian Health and Medical Research Institute](#).
- Food in Werribee: CSIRO's capability is centred on the [Food Innovation Centre](#), which houses state of the art food manufacturing research facilities, and the Food and Agribusiness Growth Centre, known as [Food Innovation Australia Limited](#).
- Marine and Atmospheric Sciences in Hobart: CSIRO's capability resides in the [CSIRO Oceans and Atmosphere](#) business unit and research infrastructure including the [Integrated Marine Observing System](#) and the [Marine National Facility \(RV Investigator\)](#).
- Energy Technology in Newcastle: CSIRO's solar field and energy research hub is centred in the [CSIRO Energy Centre](#).



**Figure 3** CSIRO's Synergy Building, Black Mountain, ACT

Source: CSIRO.

- Resources in Perth: The [CSIRO Australian Resources Research Centre](#) also houses staff from Curtin University, the University of Western Australia, the [Western Australian Energy Research Alliance](#), [CO2CRC](#), and the [National Geosequestration Laboratory](#).
- Space Sciences in Perth: CSIRO's capability is centred in the [CSIRO Astronomy and Space Science](#) business unit and with WA research infrastructure including the [Australian Square Kilometre Array Pathfinder](#) and [Pawsey Supercomputing Centre](#).
- Digital Services in Sydney: centred on digital research expertise at CSIRO's [Data61](#) in Eveleigh and facilities at [CSIRO's Linfield Campus](#).
- Tropical Innovation in Townsville: through the [Tropical Landscapes Joint Venture](#) in partnership with James Cook University, housed in the [Australian Tropical Science and Innovation Precinct](#).

CSIRO has also established its first [Urban Living Lab](#) at the [Sydney Science Park](#). The Lab is a place where researchers, industry, government and communities can get together and create, design and test innovative large-scale urban development concepts. The aim is to move beyond the lab into the real world. The [Urban Living Lab](#) initiative has:

- CSIRO acting as an overseeing agency and providing a governance framework;
- shared space for collaboration;
- an actively supported network of individuals and organisations participating in the Lab;
- formal innovation processes and associated grant programs; and
- a revenue model that sustains the activities of Lab.

CSIRO engagement in these precincts, Living Labs and research centres is helping to link national and regional sites and build connections and collaborations across Australia's innovation system.

### *Industry Growth Centres Initiative*

The industry-led Growth Centres operate in six sectors of high growth potential for Australia and have national networking capability, including the:

- [Advanced Manufacturing Growth Centre](#);
- Cyber Security Growth Centre, known as [AustCyber](#);
- Food and Agribusiness Growth Centre, known as [Food Innovation Australia Limited](#);
- Medical Technologies and Pharmaceuticals Growth Centre, known as [MTPConnect](#);
- Mining Equipment, Technology and Services (METS) Growth Centre, known as [METS Ignited](#); and
- Oil, Gas and Energy Resources Growth Centre, known as [National Energy Resources Australia](#).

Growth Centres are developing national linkages, relationships and networks between regional industry clusters, innovation precincts, universities and other research organisations and education institutions to improve transparency, build scale and impact, and promote mutually beneficial collaborative activities nationally. They are also developing research capability registers to improve transparency for their sectors.

In 2017, several of the [Growth Centres](#) began pursuing strategies to facilitate and support the establishment of clusters in regions of competitive strength across Australia. Growth Centres are also coordinating funding proposals through the [Cooperative Research Centres Program](#) and the ARC's [Industrial Transformation Research Program](#). This funding can help build capability, scale and impact within clusters.

## FIAL: Cluster Programme



Food Innovation Australia Limited (FIAL) is the Growth Centre for the Australian food and agribusiness sector. Its Cluster Programme encourages businesses to work together, align with public agencies and other institutions, for a common purpose to achieve a win-win outcome.

FIAL's matched funding is supporting the formation of new clusters, and helping existing ones to solve challenges and take advantage of exciting new market opportunities. FIAL's chairman, Mr Peter Schutz, has said that for him, "it's about changing our mind-set and realising that the world is our oyster if we work together."

To help focus collaborative efforts within their sectors, the Growth Centres have identified Industry Knowledge Priorities summarising knowledge and technology gaps in their sectors. They have been published in the Growth Centres' [Sector Competitiveness Plans](#).

Applicants for industry-focussed research programs, including the ARC ITRP and the CRC Program, are expected to align with the relevant Growth Centre's key themes and Industry Knowledge Priorities, and to engage with the relevant Growth Centres in developing proposals.

Common priorities across the six sectors include:

- developing and adopting technology and systems associated with automation and digitisation (Industry 4.0), e.g. robotics, sensors, predictive analytics, data analytics and augmented reality;
- environmental impact and sustainability;
- additive manufacturing (3D printing);
- advanced materials and composites;
- commercialisation pathways;
- understanding key markets and how to engage globally; and
- how knowledge requirements will evolve with emerging technologies.

## Growth Centre Industry Knowledge Priorities

<i>Advanced Manufacturing</i>	<i>Cyber Security</i>	<i>Food and Agribusiness</i>
<ul style="list-style-type: none"> <li>• Digital design and rapid prototyping</li> <li>• Sustainable manufacturing and life cycle engineering</li> <li>• Additive manufacturing, materials resilience and repair</li> <li>• Bio-manufacturing and biological integration</li> <li>• Nano-manufacturing and micro-manufacturing</li> <li>• Precision manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• IT integrated with control systems for plant and machinery</li> <li>• Mobile internet</li> <li>• Artificial intelligence and big data</li> <li>• Cloud computing</li> <li>• Internet of Things (or connected products)</li> <li>• Quantum computing</li> <li>• Block-chain</li> </ul>	<ul style="list-style-type: none"> <li>• Using genetics, novel technologies and processing techniques to produce highly differentiated and value added foods</li> <li>• Feeding the growing and ageing population with functional, nutritious and personalised foods</li> </ul>
<i>Medical Technologies and Pharmaceuticals</i>	<i>Mining Equipment, Technology and Services</i>	<i>Oil, Gas and Energy Resources</i>
<ul style="list-style-type: none"> <li>• Clinical specialty/therapy; areas of science; and devices and diagnostics</li> <li>• Accelerated pharmaceutical development</li> <li>• Areas of science including antimicrobial resistance, biomedical engineering and regenerative medicine</li> </ul>	<ul style="list-style-type: none"> <li>• Advancing mining and beneficiation technologies such as selective mining, comminution, classification, reducing tailings/reject streams, in-situ recovery and bio-leaching</li> </ul>	<ul style="list-style-type: none"> <li>• Mapping prospective basin geology for the minerals and energy sectors</li> <li>• Developing new technology, business models and infrastructure to adapt to the changing energy mix</li> </ul>

## *Australian Government Procurement*

The Commonwealth Procurement Rules (CPRs) provide flexibility, opportunities for innovation, access to government contracts and the ability for officials to design processes that reflect the size, scope and risk of the procurement. From 1 March 2017, the CPRs also require, for non-construction procurement above \$4 million or construction procurement above \$7.5 million, a consideration of the economic benefit of a procurement to the Australian economy, as part of the overall value for money assessment.

Economic benefits can include increases in productivity such as through greater innovation, research and development related activities and investments (including those undertaken with universities and research organisations) or transfer of technology to Australian businesses.<sup>16</sup>

The Digital Transformation Agency is transforming how the Australian Government buys digital services through establishing the [Digital Marketplace](#). Currently in beta phase, the Digital Marketplace simplifies the process of government procurement and makes it easier for businesses of all sizes to access government contracts.

The Digital Marketplace allows sellers to identify themselves as a number of business types including startups, small-to-medium enterprise, and Indigenous-owned or disability enterprises. This allows government to support the growth of these businesses.

Defence is working to provide the Australian Defence industry with clarity on priority innovation needs for its procurement requirements, as outlined below.

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<sup>16</sup> More information is available on the Department of Finance website at [www.finance.gov.au/procurement](http://www.finance.gov.au/procurement).

## Defence's priority innovation needs

Innovation within the Australian defence industry is essential to ensuring that Australia is responsive to changes in demand for military products and services.

Defence's Integrated Investment Program provides the Australian industry clarity on [priority innovation needs](#) in Defence procurement.

The Defence Innovation Hub is investing around \$640 million over the decade to June 2026 in maturing and further developing technologies which have moved from the early science stages into the engineering and development stages of the innovation process. It is an exciting initiative which will pull together research institutions, academia, industry and innovative technologies. The six capability streams identified as priorities for innovative development include:

- Intelligence, Surveillance, Reconnaissance, Electronic Warfare, Space and Cyber
- Key Enablers, such as advanced command and control systems and strategic and satellite communications
- Land Combat and Amphibious Warfare
- Strike and Air Combat, including early warning and control, electronic warfare and airborne weapons systems
- Maritime and Anti-Submarine Warfare
- Air and Sea Lift

With an investment of \$730 million over the decade to June 2026, the Next Generation Technologies Fund will focus on research and development in emerging and future technologies including:

- Integrated intelligence, surveillance and reconnaissance
- Space capabilities
- Enhanced human performance
- Medical countermeasure products
- Multidisciplinary material sciences
- Quantum technologies
- Trusted autonomous systems
- Cyber
- Advanced sensors, hypersonics and directed energy capabilities

For further information, see the [Defence Innovation Portal](#), an entry point which connects businesses with defence innovation supply opportunities.

### *Working with state and territory governments*

The Australian Government also works in partnership with state and territory governments through a range of mechanisms, including through [City Deals](#), regional development programs and structural adjustment initiatives.

This Statement aims to promote alignment between these policies and deliver increasing economic growth by driving collaboration and innovation. It promotes the consideration of place-based innovation policy, including precincts, as a component of regional and urban development and structural adjustment policy.

## An alignment of views to focus on competitive strengths and innovation in regional and urban development policy

The Productivity Commission and Australian stakeholders have recognised the need for regions to build on their competitive strengths. Innovation was also raised as an understated component of regional development policy that should be emphasised and more formally considered into the future.

In its [Transitioning Regional Economies Study Report](#), the Productivity Commission emphasised that regional development approaches must be strategic, build on a region's strengths and develop local capacity and connectivity with other regions and markets. The Australian Government's [Regions 2030 Agenda](#) emphasises the importance of local leadership in ensuring regional development aligns with local community needs.

The University Precinct Advisory Committee's engagement with stakeholders revealed an appetite for promoting regional development based on local strengths and innovation. There is scope for ensuring that innovation is a core element of regional and cities policy, such as City Deals, and regional and urban development and renewal initiatives.

To encourage economic growth and sustainable job creation, regional and urban development policy makers could usefully apply '[smart specialisation](#)' frameworks. These frameworks are consistent with the Productivity Commission's initial findings and focus on innovation. In smart specialisation frameworks, local universities and research organisations are involved in regional development, and locally led research and innovation investment is targeted to align with, complement and enhance regional competitive strengths and innovation potential.

### State and territory governments

State and territory governments have significant policy responsibilities in education and health as well as infrastructure and planning. This means they have an important leadership role in innovation precinct development.

State and territory governments also have important relationships with both the Australian Government and local governments. As a result, they are well placed to discuss how policy from all levels of government can impact on innovation precinct development. For example, state and territory governments have a role in aligning infrastructure planning with regional economic plans.

State and territory governments have a range of industry, entrepreneurship and innovation and science policies and programs that are tailored to each state's strategic priorities. States and territories are also outlining innovation precinct development strategies.

The states also support innovation ecosystems and facilitate collaboration between businesses and researchers, and between businesses, through programs such as: [NSW Boosting Business and Innovation](#) and the Queensland Government's [Advance Queensland](#) suite of initiatives.

States have also supported precincts directly through funding. Examples of long-term support include the South Australian Government's purchase of the former Mitsubishi Motors site in Adelaide to develop the [Tonsley Innovation Precinct](#). Similarly the Victorian Government has purchased the General Motors Holden site at Fisherman's Bend and made a thirty year commitment to develop the [Fishermans Bend Employment Precinct](#).

## Active precinct: Tonsley Innovation Precinct, metropolitan Adelaide

In 2010, the South Australian Government purchased the 61 hectare Mitsubishi site at Tonsley to establish a smart technology mixed-use innovation precinct for industry, education, retail and residential living. Tonsley aims to be a hub of high-value manufacturing, with a shared focus on industries and technologies in which South Australia has competitive strengths, including health medical devices and assistive technologies; clean technologies; mining and energy services; and software and simulation. Some existing partners include TAFE SA, Flinders University, Siemens, Zen Energy Systems, Simulation Australasia and Hills Innovation Centre.

The Flinders University Campus at Tonsley hosts initiatives with significant industry engagement, including the Flinders Digital Health Research Institute, NanoConnect, the New Venture Institute and the Australian Industrial Transformation Institute. Also on campus, the Medical Devices Research Institute (MDRI) has serviced over 236 companies in assessing and developing novel medical and assistive products through its Medical Devices Partnering Program. The Medical Technologies and Pharmaceuticals Growth Centre, known as MTPConnect, also has a hub at the MDRI and provides funding to support the Flinders University's Medical Devices Partnering Program.

Many universities are situated on Crown land. State and territory governments have jurisdiction over Crown land, and there are some restrictions for universities on how this land can be developed and used. These restrictions can limit industry research collaboration and innovation precinct development.

For example, the Western Australian Government has released new land to enable the development of the [Murdoch Health and Knowledge Precinct](#) adjacent to Fiona Stanley Hospital, St John of God Hospital, Murdoch University and South Metropolitan TAFE. In addition, the WA Government has approved changes to land tenure to enable Murdoch University to create a new mixed-use campus development, the [Eastern Precinct](#), on undeveloped university land. This targeted reform is expected to result in more than \$250 million in private investment and promote collaborative innovation activity.

For a detailed list of state and territory initiatives and precincts, see the **Resources** section.

### Local governments

Local governments play a significant role in innovation precinct development, specifically through land use planning, economic development strategies and initiatives for community inclusion and improved amenity. For example, the City of Melbourne is working with RMIT, the University of Melbourne, the Royal Melbourne Hospital, the Royal Children's Hospital and other stakeholders to develop the [knowledge precinct directly to the north of Melbourne's CBD](#). The City of Greater Geelong works with the Geelong Manufacturing Council and Deakin University by providing complementary services to firms, co-sponsoring networking events and [promoting the Greater Geelong region as an innovative manufacturing centre](#).

## Emerging precinct: Ipswich and West Moreton innovation ecosystem, regional Queensland

Advance Queensland's [Advancing Regional Innovation Program](#) provides \$500,000 in matched funds to each of 12 regions across Queensland. Collaborative applications were invited from each region, which had to demonstrate matched funding. The [successful proposal for the combined Ipswich and West Moreton region](#) was developed through collaborative workshops with stakeholders from industry, education, innovation hubs, community groups and local government.

The proposal comprises new entrepreneurial training for high-schoolers, and industry sector-specific weekend hackathons and accelerators. It is supported by strong cross-sector leadership. TAFE, the University of Southern Queensland and the regional startup community are collaborating to develop the entrepreneurial training package.

The program's governing consortium includes Ipswich City Council, Springfield Land Corporation, Little Tokyo Two, Fire Station 101 and the University of Southern Queensland. It is supported by advice and delivery partners including TAFE Queensland South West, the Ipswich Chamber of Commerce, industry cluster partners and neighbouring regional councils.

## Active precinct: Fire Station 101 Innovation Hub, Ipswich, regional Queensland

The Ipswich City Council won the 2017 Local Government Managers Australia Queensland award for innovation for [Fire Station 101](#), Australia's first startup hub fully funded by a local council. The Council renovated Ipswich's 1960s fire station headquarters at 101 Limestone Street, transforming it into a co-working space for digital startups with high-speed fibre and wireless internet infrastructure, access to mentoring and training, and spaces for networking and other events. The Council initiated Fire Station 101 as part of its economic development plan and CBD redevelopment project.

Fire Station 101 was opened in March 2016. By the time of the award in April 2017, Fire Station 101 had attracted 70 members, seen the birth of 15 new digital companies and hosted 110 events that reached 1230 people. Industry partners now include Accenture, Cisco, Amazon Web Services, Microsoft and the successful Australian Internet of Things startup Reekoh. Fire Station 101 is working to integrate into and help develop the region's broader innovation ecosystem, by participating on the governing consortium of the [Ipswich and West Moreton Advancing Regional Innovation Program](#).

# The aims of this Statement

There is extensive activity by different levels of government to support innovation precinct development. However, national consultations by the Committee have shown the need for a greater coordination role by the Australian Government, ensuring the effective alignment and communication of existing policies and programs. To address this, the Statement of Principles has the following broad functions:

## 1. Facilitating industry–research collaboration

- Finding suitable collaboration partners remains challenging and time consuming for both the research sector and industry.
- This signals the value of government facilitation to increase transparency and help parties find each other.
- Facilitating the creation and growth of innovation precincts is a mechanism to achieve this goal that aligns with existing initiatives (such as the [Industry Growth Centres Initiative](#), [Innovation Connections](#) and [Data61+ Expert Connect](#)).

## Innovation Connections: Supercool and Griffith University collaboration



Food waste costs Australia about \$6 billion each year. SuperCool Asia Pacific is an industry leader in refrigeration and air conditioning, and was considering options to help reduce food waste in the cold chain of food transport and storage. Through Innovation Connections, SuperCool was put in contact with a research team at Griffith University.

SuperCool and Griffith University collaborated to produce a probe that will determine the thermal properties of food in refrigerated transport and cold storage. SuperCool will own the eventual licence but could not have reached this point without the research team at Griffith University.

SuperCool's probe will remove some inefficiencies with current cold chain temperature monitoring procedures. It will eliminate time-consuming human involvements, such as a truck driver having to manually insert probes into food in various locations of a load.

## Enterprise Solutions Centre – Queen of Pops



FIAL's Enterprise Solutions Centre connects businesses with researchers and provides matched funding to solve technical challenges, develop innovative solutions and help maximise market opportunities.

FIAL helped Queen of Pops to develop their 'Crown Jewel' range of caffeinated popsicles including a cappuccino, latte, long black, chai latte, hot chocolate, and hot mocha.

While the owners of Queen of Pops were master coffee roasters with thirty years of experience, the challenge was that coffee tasted differently when in a frozen form. Through the Enterprise Solutions Centre, FIAL allowed Queen of Pops to reduce search costs of connecting with food technologists and bring the 'Crown Jewel' range to market more quickly.

By facilitating connections between researchers and business, FIAL is improving the productivity of and driving growth in the Australian food and agribusiness sector.

## **2. Ensuring policies and programs impacting on innovation precinct development are aligned with the Australian Government's agenda for increasing innovation and collaboration**

- The Government will give high-level strategic direction to ensure cross-agency alignment with its policy to promote collaboration, especially for urban and regional development policy (such as [City Deals](#) and [Regional Jobs and Investment Packages](#)). This provides a mechanism for discussing how development planning regimes can facilitate collaboration and innovation.

## **3. Connecting stakeholders locally, nationally and internationally**

- For example, the Government will help by facilitating cooperation between Austrade, Australian precincts and the Growth Centres. This cooperation will aim to market Australia internationally as a country with demonstrated collaboration and innovation capability, and improve the marketing of specific precincts. This can help attract international investment and students.
- Governments will help by marketing existing precinct capabilities within Australia and internationally, to help researchers and businesses find collaboration partners, for example by:
  - encouraging the development of capability registers; and
  - encouraging precincts to market their competitive strengths.
- Governments will disseminate case studies highlighting:
  - exemplar precincts to do business with;
  - successful precincts and collaboration projects;
  - SME success through precinct participation;
  - the benefits of precincts; and
  - example IP policies for collaboration.

## **4. Facilitating local leaders' access to the best available evidence on developing and running a precinct**

- The Australian Government will facilitate the dissemination of best practices in innovation precinct development and relevant research (e.g. by the Brookings Institution about the key characteristics of successful precincts, or through the [TCI Network](#), the [University Industry Innovation Network](#), and the [Network of Academic Corporate Relations Officers](#), [European Secretariat for Cluster Analysis](#), and the [MIT Regional Entrepreneurship Acceleration Program](#)), to raise the effectiveness of Australian innovation precincts.

# The four principles of the Statement

This Statement is underpinned by a broad consensus among stakeholders. The Statement's four principles reflect the approach stakeholders believe Australia should take to advance its collaboration capability, innovation capacity, productivity and international competitiveness.

The Statement consolidates evidence drawn from consultations and literature into guidance for all stakeholders. It aims to:

- help local precinct leaders drive innovation precinct development;
- help all stakeholders align with innovation policy frameworks;
- facilitate networking, engagement, collaboration and research translation and commercialisation informed by end-user need; and ultimately
- foster greater innovation, collaboration and economic growth.

The Statement is framed by four overarching principles for all stakeholders, including: the Australian Government, state and local governments; local leaders; and participants from industry, and the research and education sectors.

The principles leverage Australia's existing economic and research capability to promote improvements in innovation capacity, productivity and competitiveness to drive economic growth and jobs creation. They are targeted to align with existing policy and initiatives, and to provide guidance on approaches.

## 1. Local leadership should drive precinct development that targets real market opportunities and innovation potential, measured by clear performance indicators, to promote growth

***Responsibility:** Precinct Leaders, Universities, Research Organisations, TAFEs, Businesses, Community Groups, State and Local Governments*

**1A** Precinct planning should be guided by local leaders in industry (and/or other end-users of research), research, education, and the broader community.

- Development planning for specific precincts should be guided by strong, capable local leaders who understand local strengths and resources.
- Governments may help convene meetings on precinct development and may contribute their support, but planning should demonstrably be undertaken by industry, research, education and community leaders and founded on bottom-up knowledge of local needs and opportunities, not top-down assumptions by governments.
- Local precinct leaders should identify and disseminate local end-user and industry knowledge, innovation and research needs to help target collaborative activity.
- Local precinct leaders, whether from the private or public sector, should own and implement precinct strategies in collaboration with industry, research, land planning authorities and community stakeholders.
- Local leaders should develop these strategies within the context of relevant local, state and territory and Australian Government initiatives and support.

**1B** Precincts should build on local strengths and resources, and pursue real market opportunities and innovation potential as identified by credible industry partners.

- Precincts can tend to seek to be 'all things to all people,' rather than focussing on their greatest strengths. As a result, businesses and potential investors can find it difficult to locate partners to engage with. Precinct leaders should therefore identify specialisations in which the

precinct has the potential for global excellence. Strategies can then focus on marketing these capabilities and opportunities to attract talent, investment and partners.

- For precincts to be viable, local leaders should develop strategies based on rigorous evaluation of existing economic and institutional strengths, needs and innovation potential. Strengths can be a combination of competitive industry sectors and firms, local research organisations and education institutions, physical assets and infrastructure (including public transportation, shared work and lab spaces and community spaces) and community connectedness (e.g. established social capital and local communities of practice).

## Tailoring governance to developmental stages

Consultations indicated that local leaders should build robust partnerships and coalitions between existing organisations that can withstand change.

As innovation precincts vary and develop through time, local leaders should consider which governance arrangements are most appropriate.

Potential precinct governance arrangements could include (but are not limited to):

- simple networks that share information;
  - strategic alliances to coordinate and align activity and investment; or
  - dedicated facilitators and precinct organisations to drive collaborative activity.
- 
- Precincts should have commercially focussed activities targeting genuine, well-evidenced market opportunities that will drive innovation, based on evidence from credible industry partners on the ground.
  - Precincts should take a global outlook in seeking commercial opportunities. Local leaders can also facilitate relationships with investors. For example, through connecting precinct partners with venture capital, angel and international investors.
  - At a minimum, precincts should be able to become economically self-sustaining. However, precincts take many years to grow, are constantly evolving, and will require a long-term focus.
  - Industry leadership is vital in identifying market opportunities and collaborating with research and education partners to help align precinct activities.
  - Precincts are geographically focussed concentrations of activity. As such, successful precincts cannot be founded solely on high-level market analyses; deep knowledge of local and regional innovation potential is also required when determining precinct business cases and growth strategies.
  - Local leadership can prioritise seeking support from available Australian Government, state government and local government programs aligning with national, state, regional and sectoral growth strategies (such as regional and urban development initiatives, industry and innovation policies and programs, the Growth Centres' Sectoral Competitiveness Plans, etc.).

## Industry cluster: Super Yacht Group Great Barrier Reef, Cairns, regional Queensland

Boat building and repair of recreational vessels and marinas and boating infrastructure's direct economic contribution to Australia's economy was [over \\$1.9 billion in 2013-14](#). The [Super Yacht Group Great Barrier Reef](#) is an industry-led cluster focussed around Cairns, promoting the region for super yacht refit and maintenance services, and also as a tourism destination in its own right. The [Cairns Regional Council](#) is a major sponsor of the group, alongside industry partners including marina operators, specialist yacht refit, repair and maintenance firms, marine fuel suppliers, hoteliers, restaurateurs, and tourist operators.

[TAFE Queensland North](#) has developed specialist courses to supply a skilled workforce for the maritime industry, including those delivered through the [Great Barrier Reef International Marine College](#). Both James Cook University and Central Queensland University offer engineering Bachelor's degrees relevant to the cluster.

**1C** State and local governments can have an important role in convening local stakeholders and facilitating long term collaborative precinct planning. They also have a role providing supportive policy settings (e.g. allowing collaborative commercial activity on Crown land where universities operate), land planning and infrastructure, and other services.

- Local leadership and expertise from the industry, research and education sectors is paramount for successful precinct development. Governments also have vital roles as convenors and facilitators, and in designing and aligning supportive policy, around infrastructure, planning, zoning, and research and education investment.
- Governments can convene collaborative precinct planning and facilitation groups that bring together the key local stakeholders and provide a focus for knowledge and ideas exchange on precinct plans. This has the benefits of ensuring:
  - government proposals are sound, as they will be based on deep knowledge and reflection on local needs and strengths, and
  - local leaders feel ownership of – and investment in – a credible plan they have helped devise, encouraging bottom-up initiative.
- Governments can further help the planning process by conducting or commissioning expert analyses to identify the key strengths and needs of the region around a proposed precinct site, or of prospective anchor tenants. This can serve to focus precinct planning on the correct strategic priorities, and can support precinct champions, leaders and partners in marketing the precinct's specialist capabilities.
- An additional benefit of government facilitation is that it creates a communication channel from local stakeholders to governments, and between layers of government, on policy settings needed to support precinct birth and growth – especially infrastructure, planning and zoning decisions.
- Governments also contribute to precinct development through small business development, export promotion and business attraction services; and education and workforce training.

## 2. All stakeholders should work to remove barriers and disincentives to collaboration and precinct development and promote alignment across existing programs

**2A** The Australian Government, state and territory and local governments (and their agencies) should work to ensure their policies and activities align to promote collaboration and innovation, including through precinct development. In particular, place-based funding initiatives should aim to align with national collaboration initiatives, and industry, innovation and science priorities and strategies.

### **Responsibility: Governments**

- All levels of government are making valuable contributions to precinct development, both directly and indirectly; for example through urban and regional development funding, and initiatives supporting innovation, collaboration and entrepreneurship (see the Resources section).
- At the state level, there is a need to coordinate activities to ensure infrastructure and planning supports precinct growth, by connecting talented workers to evolving innovation precincts, and innovation precincts to each other.
- Aligning Australian Government, state and territory, and local government initiatives (including marketing) were possible will help to efficiently and effectively support collaboration, innovation and precinct development. For example:
  - There is natural alignment between the City Deals approach under the [Smart Cities Plan](#) and this Statement. City Deals should explore precinct development tailored to regional competitive strengths, needs and innovation potential as an urban development and renewal mechanism, and to promote economic growth.
  - As of August 2017, [Regional Development Australia \(RDA\) Committees](#) have a new mandate to focus on attracting investment and jobs to their regions. Innovation precincts building on local competitive strengths, needs and innovation potential should be considered a valid approach to this.
  - Other programs that can be leveraged to support precinct development include regional development initiatives such as the [Regional Growth Fund](#), [Building Better Regions Fund](#) and [Regional Jobs and Investment Packages](#).
  - Innovation and collaboration goals can usefully be incorporated into the work of urban and regional planning authorities. This may be relevant to the creation of master plans, zoning decisions, and infrastructure and transport plans around an innovation precinct.
- There should be a degree of alignment between industry, innovation and research priorities across Australian Government and state initiatives.
  - This can be on a sectoral basis. For example, the [Growth Centre](#) sectors inform sectoral considerations in ARC, CRC and Entrepreneurs' Programme initiatives. This policy alignment helps researchers, industry, and innovation precincts in understanding and aligning activities to these priorities. States and territories can consider aligning with and drawing on existing work when developing industry sector and research priorities.
  - There is also scope for greater alignment between jurisdictions on other aspects of innovation policy and programs covering research commercialisation, innovation seed funding, access to venture capital and mentoring and business expertise.

**2B** Governments, precinct leaders, knowledge brokers, and the research sector should communicate collaboration-enabling reforms and funding opportunities to end-users.

**Responsibility:** *Governments, Knowledge Brokers, Sector Organisations, Universities, Research Organisations, University Networks, Precinct Leaders*

- Policy changes and funding by governments and universities have created new opportunities for end-users to collaborate. However, end-users are frequently not aware of the changes and funding opportunities.
  - For example, Australian Government [changes to research block grant funding](#) and research impact measurement have helped incentivise researcher engagement with end users.
  - There are also many Australian Government and state and territory government initiatives to support collaboration and precinct development. Comprehensive lists of government support are in the **Resources** section.
  - Universities have begun reforming their intellectual property policies to simplify collaboration with industry and improve commercial outcomes, supported by Government initiatives such as the IP Toolkit.
- Governments, Innovation and Science Australia, universities, university networks, research organisations, precinct leaders and knowledge brokers could highlight these changes and opportunities to industry, to help promote collaborative activities within precincts and more broadly.
- Governments, sector organisations and university networks should continue to promote the industry-led Growth Centres that were created by the Australian Government to lead collaboration in national growth sectors.

**2C** Governments, university networks, and relevant communities of practice should identify and facilitate access to evidence on best practices in precinct development.

**Responsibility:** *Governments, University Networks*

- Governments should identify and facilitate access to evidence on best-practice precinct development, such as research the Australian Government commissioned by the Brookings Institution or research commissioned by the NSW Government.
- Governments, university networks and communities of practice should facilitate the development of case studies to share lessons learned through precinct successes and failures.

**2D** Large organisations, especially governments, large firms, universities, research organisations, TAFEs and hospitals, should ensure their procurement practices promote better collaboration and innovation.

**Responsibility:** *Governments, Large Firms, Universities*

- The procurement policies and practices of governments, large firms and public institutions such as universities, research organisations, TAFEs and hospitals can better facilitate innovation and collaboration.
- This may include implementing practices that focus on functional rather than prescriptive specifications, shared working practices, agreed prequalification processes and a reduction in paperwork

## Emerging precinct: ANSTO Innovation Precinct, Greater Sydney



The ANSTO (Australian Nuclear Science and Technology Organisation) Innovation Precinct at Lucas Heights will be designed to help foster innovation within ANSTO and the broader community, centred on the landmark national nuclear science infrastructure at Lucas Heights. ANSTO offers access to national research and engineering capabilities, provides a creative environment to facilitate collaboration and networking, and will provide opportunities for knowledge transfer between academia and industry.

The Innovation Precinct will comprise a graduate institute, an innovation centre and co-working space for startups and SMEs and a technology park for industrial users, to bring jobs and growth to southern Sydney.



## Regulatory improvements promote precinct development

The Productivity Commission has repeatedly found that complex and restrictive regulatory processes relating to land-use planning, zoning and development can be costly barriers to business entry and investment.

This is particularly the case when activities take place on Crown land, where most universities are located. Through considering potential simplification of land use regulations on Crown land, state governments can facilitate innovation precinct development.

### 3. All stakeholders should encourage the development of capability and connections for their precinct; including person-to-person connections and precinct integration into surrounding communities and local, national and international networks and supply chains

**3A** Precinct leaders should work to grow their expertise and capability in developing effective precincts, and precinct partners should develop their collaborative capability.

**Responsibility:** *Precinct Leaders, Universities, Research Organisations, TAFEs, Hospitals, Businesses, Sector Organisations, University Networks*

- Precinct leaders should participate in communities of practice on precinct development to access knowledge and share their own learnings.
  - Example networks include [TCI](#), the [University Industry Innovation Network](#), the [European Secretariat for Cluster Analysis](#), the [MIT Regional Entrepreneurship Acceleration Program](#) (which has accepted teams from Queensland and Victoria), the [Alliance of Technology Transfer Professionals](#); [Knowledge Commercialisation Australasia](#), and the [Network of Corporate Relations Officers](#).
- These professional networks can share good practice for developing strategies for precinct growth, and selecting and measuring key performance indicators for precincts. They can also share lessons learned and case studies highlighting factors for precinct success and failure.
- A key role of precinct leaders and facilitators is to broker partnerships between organisations, such as between complementary businesses and research groups. Where precinct leaders/facilitators lack this expertise, they should seek guidance or training through existing communities of practice.
- Universities, research organisations, TAFEs and individual researchers should tailor and target services and solutions to meet the needs of end-users.
- Businesses value the multidisciplinary expertise available within precincts and access to many types of engagement with universities, research organisations and TAFEs, including knowledge exchange and targeted training for staff.
- Where the precinct aligns with Growth Centre sectors, precinct leaders should communicate to partner universities, research organisations, TAFEs and (where relevant) hospitals the Industry Knowledge Priorities developed by the Growth Centres (see the [Sector Competitiveness Plans Overview](#)). There are opportunities to facilitate collaborative projects between precincts and partner organisations on these priorities. [Innovation Connections](#) facilitators and [Entrepreneurs' Programme](#) Sector Directors can assist individual businesses in this process.

## Active precinct: Newcastle Institute for Energy and Resources (NIER), regional New South Wales



Through the development of interdisciplinary teams and industry connections, NIER has proved successful in producing high-impact research addressing real world challenges. NIER's foci include resource sustainability and energy efficiency, and the institute provides valuable opportunities to advance research through access to large-scale test bed and pilot plant operations. NIER is contributing to improved efficiency and productivity, lower emissions and improved environmental outcomes. Industry partners include BHP Billiton, Glencore, Ausgrid and Bluescope, among others. Projects include:

- The invention of a clean energy, heat conversion technology, GRANEX®, to demonstrate cost savings in electricity generation for remote mining and industrial sites and rural communities. The project is delivered in partnership with Granite Power Ltd and the Australian Renewable Energy Agency, including a pilot scale demonstration unit installed at Wallsend Public Swimming Pool.
- Establishing a \$4.2 million industry funded centre to develop a range of sophisticated hybrid renewable technologies with India's VTara Energy Group.

NIER also has a memorandum of understanding with the Oil Gas and Energy Resources Growth Centre, known as National Energy Resources Australia (NERA), for a collaboration project in coal site remediation. NIER is also a partner in the state-wide partnership METS NSW (Mining, Equipment, Technology and Services), along with NERA, the METS Growth Centre (known as METS Ignited), and the regional industry innovation network HunterNet. METS Ignited and FIAL are also represented on the NIER Advisory Board, which oversees the activities of the Institute.

Both the Australian Government and New South Wales Government provided funding to support the establishment of NIER.

**3B** Precinct leaders and partners should foster a culture of collaboration, encouraging person-to-person connections within precincts; and take steps to integrate precincts into surrounding communities and local, national and international networks and supply chains.

**Responsibility:** *Precinct Leaders, Universities, Research Organisations, TAFEs, Hospitals, Businesses, Sector Organisations, University Networks, Governments*

- Precincts are a means of building linkages, networks and trust between people to encourage collaboration, including between researchers, educators and end users.
- Precinct leaders and partners should take steps to integrate themselves into their surrounding communities; and local, national and international networks and supply chains. For example:
  - Wherever possible, precinct leaders and partners should leverage existing networks – such as [Growth Centres](#), the [CRC Association](#), relevant industry networks<sup>17</sup> and university networks<sup>18</sup> – to help link businesses to researchers with the technical expertise and professionalism to solve identified challenges.
  - Precinct leaders and partners should support precinct integration into regional networks and supply chains by engagement with [Regional Development Australia](#) Committees and local and regional chambers of commerce.
  - Precinct leaders and partners should engage with partners such as Austrade and the Growth Centres to pursue opportunities to integrate into international supply chains and attract international investment. Leaders can also engage through the Australian diaspora, participating in international trade shows and brokering international partnerships.
- Sector organisations and university networks can foster connections and improve coordination between precincts, to generate scale and promote collaborative research and knowledge exchange on industry, research and education capabilities and needs. For example, Growth Centres are supporting the establishment of, and facilitating linkages between, precincts and clusters.
- Precinct leaders should engage with their local communities formally and informally, such as through participation in local development planning forums and community networks. They should consider steps to encourage locally relevant social entrepreneurship and good corporate citizenship by precinct members.
- Precinct leaders should facilitate communication between partner organisations to ensure effective alignment of business growth strategies with the skills and research strategies of partner universities, research organisations, TAFEs and (where relevant) hospitals.
- Precinct leaders could identify and publish case studies about the benefits arising from successful collaboration between researchers and businesses, including SMEs, to encourage further engagement.
- Precinct leadership can encourage mobility between students/researchers, businesses and community groups, and open up research infrastructure and capability for use by end users to foster innovation.
- Precinct leaders can usefully curate activities to facilitate diverse groups of people meeting and collaborating.
- Precinct leaders can create informal spaces to encourage serendipitous meetings between people in the precinct, and host regular events to promote a culture of ideas sharing, innovation and collaboration. This could include:
  - Shared social spaces such as cafés; and
  - Events such as hackathons, collaboration speed-dating, and supply chain challenges highlighting business needs and facilitating SME engagement.

<sup>17</sup> E.g. [HunterNet](#), [Geelong Manufacturing Council](#) and [South East Melbourne Manufacturers Alliance](#).

<sup>18</sup> E.g. [Universities Australia](#), the [Regional Universities Network](#), the [Group of Eight](#), the [Innovative Research Universities](#) and the [Australian Technology Network of Universities](#).

**3C** Precinct leaders and partners should work to improve transparency and precinct marketing capability domestically and internationally.

**Responsibility:** *Precinct Leaders, Universities, Research Organisations, TAFEs, Governments*

- Researchers and end-users are often unaware of potential collaboration benefits and have difficulty identifying capable partners locally and nationally. Technical language can also create barriers for end-users trying to consider the applicability of any research for their needs.
- Stakeholders noted ongoing challenges around ‘transparency,’ such as where relevant expertise, equipment and commercialisation know-how can be found. A range of tools can help overcome transparency issues, for example the [Data61+ Expert Connect](#) (and the associated [Innovation Map](#) and [Innovation Platforms](#)) to identify experts, and [AusPat](#) from IP Australia to identify existing knowledge. These could be promoted through precincts and Growth Centres.
- The quality of precinct and university marketing varies considerably. Precincts should actively promote their competitive strengths, value proposition for end-users and specialisations in which they have global potential.
- Potential mechanisms to market an innovation precinct could include partnering with Austrade, participating in capability registers such as the [Data61+ Expert Connect](#) and/or those being developed by the Growth Centres, or obtaining end-user focussed research accreditation<sup>19</sup> to signal professionalism and capacity to undertake collaborative research.
- Case studies of precinct capabilities can improve the ability of end-users to come together with research and education providers. Case studies can highlight research capability and equipment and how to access it, and intellectual property policies. Case studies can also champion key universities, research organisations and TAFEs within precincts as exemplars to do business with, and highlight SME success. The Department of Industry, Innovation and Science can work with precincts to develop these case studies.
- Governments play an important role in promoting international engagement. Austrade and equivalent state organisations will work together to market Australia as an innovative destination, and our global strengths. There are further opportunities to market national precinct capability and capacity for innovation and collaboration, possibly using case studies. Innovation and Science Australia, Austrade and precincts can partner to target future opportunities for collaboration, inwards investment and attracting foreign students.

## Science Meets Business

Internationally, large-scale innovation networking forums, such as those run by the United Kingdom’s [Knowledge Transfer Network](#) or the [Carnot Institutes](#) in France, are key mechanisms for researchers and innovative businesses to highlight their capabilities to end users. In Australia, Science and Technology Australia runs the annual [Science Meets Business](#) event to bring together leaders in the business and science technology, engineering and mathematics sectors. The aim of the event is to showcase new collaboration success stories, break down barriers between science and business, and facilitate understanding and meaningful connections.

<sup>19</sup> E.g. from the [European Secretariat for Cluster Analysis](#), the [MIT Regional Entrepreneurship Acceleration Program](#), or the [Accreditation Council for Engaged and Entrepreneurial Universities](#).

## 4. Precinct leaders and partners should coordinate strategy on skills and improve student employability and entrepreneurialism

4A Precinct partners should develop coordinated skills strategies.

**Responsibility:** *Precinct Leaders, Universities, Research Organisations, TAFEs, Hospitals, Businesses*

- In consultation with industry, educators, researchers and government, precinct leaders can usefully prepare strategies to address current and future skills needs across the precinct. Skills needs may include workforce capability and entrepreneurial talent to support organic precinct growth.
- Precinct-based higher and vocational education and training institutions could also work with end-users on courses and curriculums, tailoring courses to end-user skills needs and improving employment outcomes for their students.
- Where the precinct aligns with Growth Centre sectors, precinct leaders should communicate to partner universities, research organisations and TAFEs the student skills required to address the Industry Knowledge Priorities developed by the Growth Centres (see the [Sector Competitiveness Plans Overview](#)).

4B Precinct leaders, partners and governments should encourage student entrepreneurship and engagement with end-users, including firms and community groups.

**Responsibility:** *Precinct Leaders, Universities, Research Organisations, TAFEs, Businesses, Community Groups, Governments*

- Students (whether undertaking university or vocational education and training qualifications) can contribute to a dynamic and vibrant precinct environment. Vibrant precincts with industry engagement improve students' campus and educational experience. This can encourage domestic and international students to consider studying at a university that participates in an innovation precinct.
- In these precincts, end-users can have ready access to students as a source of talent and research capability. This access to talent can also be an important driver for private investment.
- Precinct leaders should consider ways innovation precincts can facilitate student interaction with end-users in need of their skills and capabilities, including exposing students to employment opportunities and broadening their skillsets. One approach would be to partner with CSIRO's [Ribit](#), a platform for matching students with industry internships, or the [Industry Mentoring Network in STEM](#) initiative.
- Precinct leaders can also consider co-locating incubators, co-working spaces, innovation hubs and accelerators to foster entrepreneurship and promote startup activity within precincts, including by students and researchers. Startup initiatives can improve mobility between students, end-users and researchers; and help students develop workplace and entrepreneurial skills.
- Governments should consider how broader frameworks can promote or hinder work-integrated learning initiatives within the context of precincts.

## Emerging precinct: Innovation & Collaboration Centre, metropolitan Adelaide



Established in 2015, the Innovation & Collaboration Centre (ICC) is a strategic partnership between the University of South Australia (UniSA), the South Australian Government and global independent IT services provider, DXC Technology (DXC).

By leveraging in-house expertise in business growth, creative thinking, commercialisation and technology, the ICC supports the lifecycle from idea generation to growth and expansion. The collaborative working environment provides a physical hub for companies to test and validate their business models and ideas before taking them to the market.

The ICC is already fostering high-tech entrepreneurship. For example, the startup Analytix was awarded \$50,000 in seed funding from UniSA's Venture Catalyst initiative to develop their media compression and intelligent video analytics company operating in the computer vision space.

Caption: Analytix Software co-founders Migel Tissera, Daniel Padilla and Jhordany Rodriguez.



**Caption:** Student engagement at ANSTO.

Source: Australian Nuclear Science and Technology Organisation

# Next Steps

The Statement of Principles is intended to guide best practice in innovation precinct development and operation, including the designing and implementation of policies and initiatives. It also recognises that there is significant activity being undertaken by stakeholders across Australia and that positive changes are underway.

Throughout consultations, stakeholders have encouraged the Australian Government to take a 'hands-off' approach and provide non-prescriptive guidance and principles to support innovation precinct development.

The Australian Government encourages further collaboration and innovation precinct development and commits to ongoing engagement on innovation precincts, as outlined below.

## Call to action

For this Statement to have an impact, all stakeholders, particularly local leaders, will have to work to drive innovation precinct development aligning with this Statement of Principles. This will include the Australian Government committing to undertake the activities outlined below, with an expectation of similar commitments from other stakeholders.

State, territory and local governments should therefore consider how the principles can be applied to their activities, including new and existing initiatives.

State governments in particular have an important role as the policy leaders on infrastructure and planning. They may wish to build on this Statement with their own plans and frameworks. These should align with their policy responsibilities and state and territory, regional and local strengths and needs. State governments may also consider establishing new governance structures or leveraging existing ones to coordinate precincts policy with Australian Government agencies and local governments.

For example, the NSW Government is developing its own precincts strategy aligned with these high-level principles and leveraging its other initiatives and their supporting governance structures, such as Jobs for NSW and Knowledge Hubs. Prominent cluster initiatives are also being progressed by the Queensland and Victorian Governments.

## METS Ignited collaboration with the Queensland Government and the Queensland University of Technology



METS Ignited is the national industry-led Growth Centre for Australia's mining equipment, technology and services sector. The Queensland Government is contributing \$6 million for a collaborative work program between METS Ignited and the Queensland University of Technology, where METS Ignited has established its headquarters. This includes the creation of the [Igniting METS Accelerator](#) pilot program, to bring leading mining sector corporates together with startups and SMEs.

METS Ignited has also collaborated with the Queensland Department of State Development on the [METS Ignited Cluster Program](#). The Cluster Program is being piloted in the Bowen Basin-Mackay region. The Cluster Program brings together METS companies with complimentary areas of expertise to collaborate to solve mining company challenges.

Precinct leaders should work to develop and implement their strategies in line with these principles and relevant state and local government frameworks, and collaborate with all relevant stakeholders. Local stakeholders should also consider the potential benefits of participating in innovation precincts, and any contributions they could make.

Sector organisations such as Growth Centres, as well as knowledge brokering and networking organisations, could also consider their role in supporting precinct development and the development of innovation precinct strategies.

## Australian Government commitments

### Governance framework

On behalf of the Australian Government, the Department of Industry, Innovation and Science will maintain a web presence and central contact point to coordinate activity, disseminate information and engage with interested stakeholders and across all levels of government on issues relating to innovation precincts.

The Department of Industry, Innovation and Science will also consider emerging issues and challenges, and coordinate policy and communications relating to innovation precincts. This may include monitoring activity and considering the case for future policy interventions.

These activities will be undertaken in partnership with other agencies, including Austrade, the Department of Education and Training, the Department of Health, the Department of Infrastructure and Regional Development, and the Department of Prime Minister and Cabinet.

## 1. Considering the value of innovation precincts and place-based innovation in driving economic growth

- The Australian Government will consider the role of innovation and the principles contained within this Statement in existing and future regional development and cities initiatives, including City Deals, the Regional Growth Fund, Building Better Regions Fund and Regional Jobs and Investment Packages.
- The Australian Government will consider the role and value of innovation precincts in promoting collaboration, innovation, knowledge transfer and commercialisation to drive economic growth; including in the context of regional development and cities initiatives, such as those outlined above.
- Where the Growth Centres consider there is value in doing so, the Australian Government will encourage their participation in industry clusters and innovation precincts. This engagement should improve the productivity, competitiveness and innovation capacity of their sectors. State and territory governments may support such engagement, particularly where it delivers targeted regional outcomes.

## 2. Facilitating innovation precincts to better market their capabilities both domestically and internationally

- CSIRO's Data61 has established the Data61+ portal, including [Expert Connect](#), to assist businesses in identifying and connecting with suitable research capability.
  - Data61 will work with other stakeholders to collect and incorporate innovation precinct data, broader innovation and research commercialisation data, and information about research and innovation centres and hubs, into this portal.
- The Australian Government will encourage precinct leaders to consider their competitive strengths and market their capabilities to end-users, both domestically and internationally, to promote engagement in precinct developments. This will assist end-users, particularly SMEs, to identify potential collaboration partners.
  - Precinct leaders can develop case studies in collaboration with their stakeholders that promote their competitive strengths, research capabilities, available infrastructure and capacity to partner with end users. These case studies will be collated and published in partnership with Data61 to improve transparency.
  - Austrade will work with precinct leaders and use the developed case studies to market Australia's research capability, infrastructure and opportunities internationally to attract inward investment and international students.

## 3. Working with state and territory governments

- The Australian Government recognises that all levels of government have areas of responsibility relating to industry–research collaboration and innovation precinct development.

- The Australian Government will work with other jurisdictions through forums such as the Council of Australian Governments (COAG) Industry and Skills Council to improve the complementarity of existing arrangements, and to leverage state and territory networks, expertise and experience in fostering:
  - business simplification;
  - innovation precinct development and industry–research collaboration;
  - skills and talent and entrepreneurship;
  - innovation infrastructure;
  - investment; and
  - sectors of competitive strength and strategic priority.
- The Australian Government will work with other jurisdictions through existing networks to highlight to all stakeholders the value of precincts and to promote best practices in precinct development, recognising that state and territory governments may develop their own innovation precinct frameworks and initiatives.

#### 4. Encouraging precincts to share best practice approaches through communities of practice

- Stakeholders acknowledged that place-based innovation approaches are relatively new in Australia, with varying degrees of implementation success. Many precincts across Australia are emerging and working to build partnerships across industry, research and education. Local leadership is a key driver of precinct development.
- Communities of practice in innovation precinct development can help to share good ideas and approaches, including around metrics, and contribute to a national innovation narrative. These networks are emerging in Australia, building from international communities of practice in precinct development.
- The Australian Government encourages stakeholders to participate in communities of practice focussed on disseminating best practice precinct development.

#### 5. Considering end-user and industry knowledge, innovation and research needs

- Recent [reforms to research block grant funding](#) for universities provide increased incentives for industry and end-user engagement, and also provide universities with increased flexibility to support research.
  - Growth Centres, the Department of Defence and other organisations have outlined end user knowledge and skills priorities and identified current and future skills shortages.
  - Promoting these priorities and encouraging forums and other mechanisms to facilitate engagement could help researchers and the higher education sector to respond to industry need.
  - The Australian Government, Defence, and Growth Centres, alongside other organisations and networks, will continue highlighting these priorities.
- The Australian Government also encourages local precincts and clusters to identify, publish and promote local end-user and industry needs to help target collaborative activities within their regions.
  - These priorities will help guide local activities, and also help to inform broader regional and national education, research and innovation priorities.
  - Local precinct leaders and clusters should forward these end-user and industry needs to Growth Centres, Regional Development Australia Committees, and other relevant organisations to inform ongoing processes to identify and market national industry needs. The Australian Government may also consider these local priorities alongside broader input when considering national priorities.

## 6. Monitoring the impacts of reforms, ongoing precinct development and best practice adoption

- The Australian Government recognises that state and local governments, businesses, universities and research organisations are all playing an important role in precinct development. Furthermore, there are many active, emerging and planned innovation precincts.
- The Australian Government also recognises that there is a broad range of existing initiatives, particularly changes to [research block grant funding](#) and measuring [research impact](#), which are driving ongoing transformations in approaches to industry-research collaboration and innovation precinct development.
- The Australian Government will continue to monitor the impact of recent reforms, and ongoing innovation precinct development, and will consider the need for any further policy interventions if gaps and market failures become apparent.
  - Any further policy development will be considered through formal processes.

# Conclusion

This Statement of Principles, as part of the Australian Government's broader innovation agenda, will encourage the right settings across the innovation system for Australians to partner, collaborate and innovate.

This Statement is the Australian Government's response to national consultations showing the need for a greater coordination role by the Australian Government. The Statement facilitates the effective communication of existing policies and programs to promote innovation and collaboration, without being overly prescriptive for other stakeholders.

It provides a focal point to align policy, and to promote innovation precincts, collaboration and innovation as a path to economic growth and sustainable job creation.

It supports other Government policy agendas, such as the [National Innovation and Science Agenda](#), the [Smart Cities Plan](#), election commitments to develop precincts, the [Industry Growth Centres Initiative](#) and [Regions 2030](#).

The Statement of Principles forms a key part of these broader realignments within our national innovation system to accelerate improvements in industry–research collaboration, research translation and commercialisation.

The Statement is underpinned by a broad consensus among stakeholders. Its four principles reflect the approach stakeholders believe Australia should take to advance its collaboration capability, innovation capacity, productivity and international competitiveness.

Australia has an opportunity today to leverage our world-class researchers, competitive industries and science infrastructure to drive economic growth, create thriving communities and create quality jobs in future industries. Australia enjoys a prosperous reputation as the 'lucky country.'

If all stakeholders take steps to foster place-based innovation and collaborative local, regional and national networks in line with this Statement of Principles, we can utilise Australia's world class assets to make our own luck and ensure a bright future.