



Australian Government

PARTNERING WITH AUSTRALIA ON INNOVATION, SCIENCE AND RESEARCH



Version 3, March 2020

An electronic copy of the latest version of this document can be accessed at:
industry.gov.au/strategies-for-the-future/increasing-international-collaboration

ISBN: 978-1-922125-67-5 (PRINT)
978-1-922125-68-2 (ONLINE)

© Commonwealth of Australia 2019

Ownership of intellectual property rights

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia.



Creative Commons licence
Attribution
CC BY 4.0

All material in this publication is licensed under a Creative Commons Attribution 4.0 International Licence, save for content supplied by third parties, logos, any material protected by trademark or otherwise noted in this publication, and the Commonwealth Coat of Arms. These are forms of property which the Commonwealth cannot or usually would not license others to use.

Creative Commons Attribution 4.0 International Licence is a standard form licence agreement that allows you to copy, distribute, transmit and adapt this publication provided you attribute the work. A summary of the licence terms is available from creativecommons.org/licenses/by/4.0/.

Content contained herein should be attributed as as *Partnering with Australia on Innovation, Science and Research*.

Disclaimer:

The Australian Government as represented by the Department of Industry, Science, Energy and Resources has exercised due care and skill in the preparation and compilation of the information and data in this publication. Notwithstanding, the Commonwealth of Australia, its officers, employees, or agents disclaim any liability, including liability for negligence, loss howsoever caused, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying upon any of the information or data in this publication to the maximum extent permitted by law. No representation expressed or implied is made as to the currency, accuracy, reliability or completeness of the information contained in this publication. The reader should rely on their own inquiries to independently confirm the information and comment on which they intend to act. This publication does not indicate commitment by the Australian Government to a particular course of action.

Designed and typeset by Design, Corporate and Digital,
Department of Industry, Science, Energy and Resources Canberra.

PARTNERING WITH AUSTRALIA ON INNOVATION, SCIENCE AND RESEARCH

Contents

Introduction	5
Our strengths	7
Benefits of collaborating with Australia	8
Australian Government policies and priorities	11
Science and Research Priorities	11
National Science Statement	11
National Innovation and Science Agenda	12
Global Innovation Strategy	12
National Strategy for International Education 2025	12
Innovation and Science Australia	13
Research infrastructure supporting collaboration	14
Who to partner with in Australia	16
National science and research agencies	16
Australian Institute of Marine Science	18
Australian Nuclear Science and Technology Organisation	19
Australian Space Agency	20
Bureau of Meteorology	21
Commonwealth Scientific and Industrial Research Organisation	22
Case Study—CSIRO	24
Geoscience Australia	26
Case study—Digital Earth Australia	27
Industry Growth Centres Initiative	28
Innovation Precincts	29
National Measurement Institute	30
Case study—Next-generation electrical measurement standards	31
Australian Astronomical Optics	32
Siding Spring Observatory	33
Australian Antarctic Division	34
Australian Bureau of Agricultural and Resource Economics and Sciences	35
Australian Federal Police (AFP) Forensics	36
Defence Innovation System	37
Defence Innovation Hub	37
Defence Science and Technology Group	37
Universities	38
Excellence in Research for Australia	39
Engagement and Impact Assessment	39

Business	40
Austrade	40
Case study—Fighting cancer with innovative research	40
IP Australia	41
Other Partners	42
Multidisciplinary organisations	42
Medical research organisations	42
Agriculture and biosecurity organisations	43
Animal and plant health organisations	43
Collaboration support	44
Australia-China Science and Research Fund	44
Australia-India Strategic Research Fund	45
Australian Renewable Energy Agency	45
Australian Research Council	46
Centre for Defence Industry Capability	46
Cooperative Research Centres Program	47
Global Innovation Strategy Initiatives	48
Global Innovation Linkages	48
Global Connections Fund	48
Regional Collaborations Programme	48
Moon to Mars Initiative	49
International Space Investment Initiative	49
Medical Research Future Fund	50
National Health and Medical Research Council	51
Rural Research and Development Corporations	51
Australian Centre for International Agricultural Research	52
Investing in Australian startups and businesses	54
Biomedical Translation Fund	54
Business Innovation and Investment Programme	55
Entrepreneurs' Programme	55
Landing Pads	56
Visas for Innovation	56
Other Venture Capital Programs	57
Connecting individuals	58
Australia Awards	58
Australia Global Alumni Engagement Strategy 2016-2020	59
New Colombo Plan	59
Australian Learned Academies	60
Questacon—The National Science and Technology Centre	62





Introduction

Across Australia, the Australian Government, businesses and the research sector are working to grow the nation's capabilities in science, technology and innovation. Embracing science, technology and innovation is critical to growing Australia's economy. It also allows Australian researchers and innovators to develop new solutions that can address the emerging challenges facing our country and the world – often in collaboration with partners from across the globe.

This publication outlines the range of opportunities to invest in, and collaborate with, Australian organisations on science, technology and innovation. It is intended to be read by foreign governments, businesses and researchers who are interested in finding partners and collaborators in Australia.

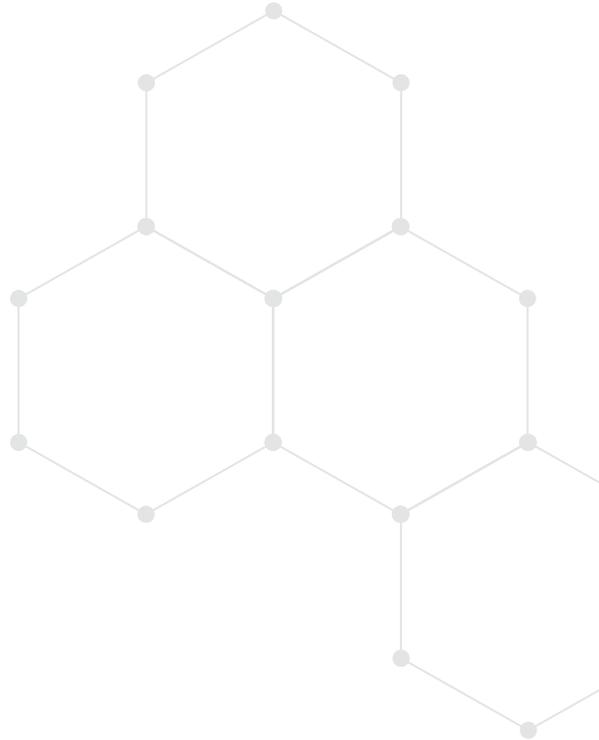
For more information about how the Australian Government is supporting international collaboration, please see the [Department of Industry, Science, Energy and Resources website](#)

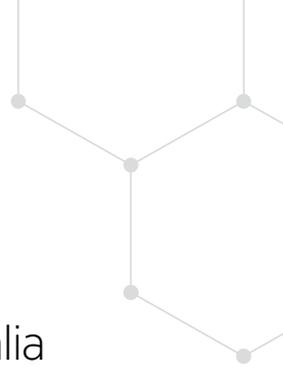


Professor Michelle Simmons, Australian scientist and 2018 Australian of the Year, is leading the race to build the world's fastest quantum computer.

Our strengths

- Strong education and research sectors
- World-leading public research agencies
- Cutting-edge research infrastructure
- Innovative businesses expanding their impact globally
- Trade and investment base for international companies doing business in our region
- Sound governance, solid democratic institutions and transparent regulatory systems.





Benefits of collaborating with Australia

International collaboration supports the exchange of knowledge, helps to bring diversity in perspective to solving the challenges of our time, and generates new ideas for the future.



The Australian Government recognises the vital role that new knowledge and innovation plays in the economic, cultural and social advancement of a nation. The 2019-20 Budget included a new investment of \$19.5 million over four years to establish a Space Infrastructure Fund to support the rapid growth of Australia's space industry, alongside commitments to improve nuclear science research infrastructure and to encourage gender equity in science, technology, engineering and mathematics.

This complements the 2018-19 Budget, which included new investments of \$2.4 billion in Australia's research, science and technology capabilities, increased long term funding for national research infrastructure and investments to improve Australia's artificial intelligence capability.

In recent years, the Government has also provided new funding to support vital national initiatives including \$500 million for a Genomics Health Future Mission, more than \$100 million to support Antarctic science and \$100 million for science to implement reef restoration and support reef resilience and adaptation for the Great Barrier Reef.

Australia has the capacity and capabilities to provide high-quality natural resources, food, education, tourism, and financial and professional services to the world.

The country's intellectual capital, commercial focus and collaborative approach makes it an ideal partner for business, investment and collaborative activities. Australia has a strong record of innovation, underpinned by its significant government and private sector R&D investment and quality-enabling ICT infrastructure.

Australia is recognised globally for its high-quality research. Despite having only 0.3 per cent of the world's population, Australia contributed to over four per cent of world research publications. Australia's research performance is strong across a broad range of disciplines from the basic sciences and engineering, to the social sciences and humanities. Australia's research institutes of all sizes, right across the university, health and government sectors, have numerous areas of high specialisation and high citation impact. They also welcome international collaboration, with more than half of Australia's scientific publications including international contributors.

Australia has a strong framework for research integrity underpinned by the following three national research standards:

- the *Australian Code for the Responsible Conduct of Research*;
- the *National Statement on Ethical Conduct in Human Research*; and
- the *Australian code for the care and use of animals for scientific purposes*.

Australia provides an excellent environment for international researchers and innovators, including high quality infrastructure and intellectual capital. Australia is highly multicultural and our organisations take pride in providing a supportive setting for international visitors.

All these features make Australia a destination of choice and a sought-after strategic partner.

The impact of Australia's science and innovation is no more apparent than through the following innovations that have revolutionised the world:

- Silicone hydrogel contact lenses
- Cochlear implants
- Cervical cancer vaccine
- Black box flight recorder
- Wi-Fi
- Creation of plastic banknotes
- Ultrasound scanner
- Spray on skin
- 3D metal printing technology



**Food****Cyber Security****Advanced
Manufacturing****Soil and Water****Energy****Environmental
Change****Transport****Resources****Health**

Australian Government policies and priorities

Science and Research Priorities

Australia has developed a set of national Science and Research Priorities (and underpinning practical challenges) to increase investment in areas of immediate and critical importance to Australia and its place in the world. The priorities and associated practical research challenges are helping Australia's world-class science and research efforts to reflect the needs of industry, the economy and the community.

The nine priorities are: food, soil and water, transport, cyber security, energy, resources, advanced manufacturing, environmental change, and health.

industry.gov.au/data-and-publications/science-and-research-priorities

National Science Statement

The National Science Statement sets out the Australian Government's vision for science in Australia and a strategic policy framework to guide future decision making in science.

The Statement demonstrates the government's commitment and long-term approach to having a strong and stable science system. This includes recognising the importance of international collaboration, and committing to strengthening and expanding Australia's strategic international science partnerships and programs.

industry.gov.au/data-and-publications/australias-national-science-statement



National Innovation and Science Agenda

The National Innovation and Science Agenda (NISA) is the government's flagship innovation and science policy. Announced in 2015, the NISA sets out Australia's vision for economic prosperity, driven by embracing new ideas in industry, science and innovation policy and harnessing new sources of growth. It is built on four pillars:



Culture and capital:

helping businesses embrace risk and incentivising early stage investment in startups



Collaboration:

increasing the level of engagement between businesses, universities and the research sector to commercialise ideas



Talent and skills:

training students for the jobs of the future and attracting the world's most innovative talent to Australia



Government as an exemplar:

leading by example in the way the Australian Government invests in and uses digital technology and data to deliver quality services

[industry.gov.au/strategies-for-the-future/
boosting-innovation-and-science](https://industry.gov.au/strategies-for-the-future/boosting-innovation-and-science)

Global Innovation Strategy

The Global Innovation Strategy is the key international measure under the NISA, providing an overarching framework to guide Australia's international industry, science and innovation collaboration.

The Strategy fosters and promotes global engagement on entrepreneurship and innovation, building strong research and business connections internationally. It is underpinned by funding initiatives that help Australians take their ideas to the world, and support international collaboration, particularly between researchers and industry.

For information about initiatives and funding programs available under the Global Innovation Strategy, which provides support for collaboration, please see page 48.

industry.gov.au/Global-Innovation-Strategy

National Strategy for International Education 2025

Australia's National Strategy for International Education 2025 is driving collaboration in education and research and is based on three broad pillars:

- strengthening the fundamentals of Australia's education, training and research system, and providing effective regulatory, quality assurance and consumer protection arrangements
- making transformative partnerships between people, institutions and governments, at home and abroad
- competing globally by responding to global education and skills needs and taking advantage of emerging opportunities

nsie.education.gov.au

Innovation and Science Australia

Announced under NISA in 2015, Innovation and Science Australia (ISA) is a statutory body that was established to provide the Australian Government with whole-of-system advice on science, research and innovation. ISA is an independent board of entrepreneurs, investors, researchers and educators with collective expertise spanning global and local experience in innovation, science and research.

ISA supports the Australian innovation, science and research (ISR) system by:

- Providing the Australian Government with strategic, whole-of-government advice on industry, innovation, science and research matters
- Monitoring and overseeing innovation programs e.g. Cooperative Research Centres
- Stimulating public discussion about innovation and science

ISA is supported by the Office of Innovation and Science Australia (OISA).

ISA will deliver two key research projects before the end of 2020: one exploring opportunities for increased business investment in innovation, and another on the effectiveness of Government investment and system performance.

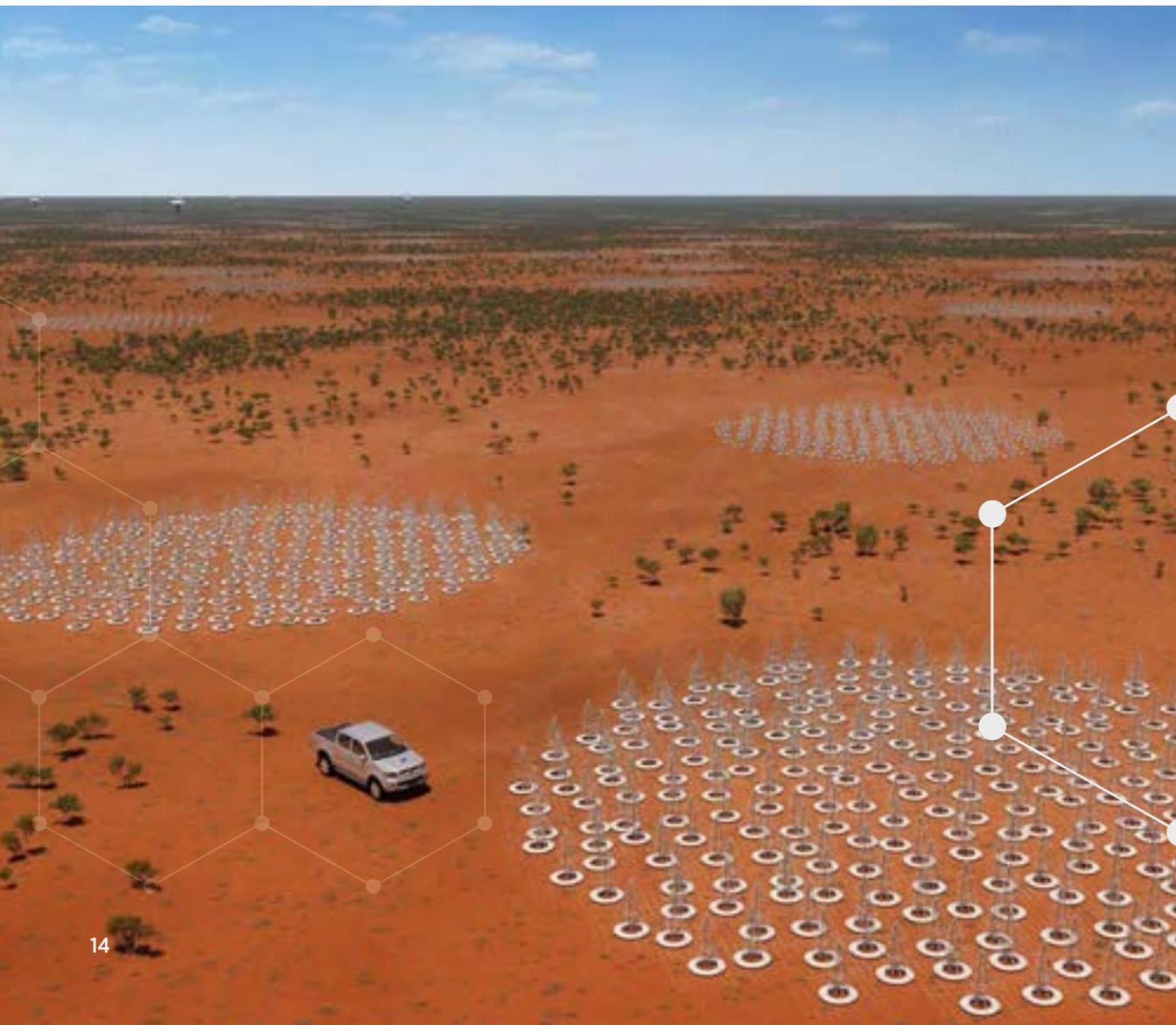
industry.gov.au/strategies-for-the-future/innovation-and-science-australia



Research infrastructure supporting collaboration

Australia's strategic investment in research infrastructure has provided a platform for collaboration to help Australian businesses grow and create jobs. Through nationally and internationally-networked facilities and projects, researchers from differing disciplines come together to tackle the challenges that face Australia and the world. These facilities, along with their specialist staff support cross disciplinary research and collaborations with small, innovative companies and major multinationals, including trialling new technologies and services.

The facilities and projects supported through Australia's National Collaborative Research Infrastructure Strategy (NCRIS) underpins research excellence and collaboration between universities, research institutes, government and industry to deliver research excellence and practical outcomes. NCRIS supports international collaboration through facilities and projects covering capabilities such as high performance computing, data, environmental and earth monitoring, characterisation, advanced fabrication and instrumentation, biology and therapeutic development, and astronomy.



In the 2018-19 Budget, the Australian Government announced additional funding of \$2.2 billion to support national research infrastructure, including new funding of \$1.9 billion for NCRIS to deliver long-term funding for Australia's research infrastructure facilities and projects. NCRIS funding will maintain world-class, high-quality facilities across Australia that can also be accessed by international researchers. It will ensure the continued transfer of knowledge between researchers, provide technology and expertise for industry to develop new products, and ensure our research institutions are modern and cutting-edge.

[education.gov.au/national-collaborative-research-infrastructure-strategy-ncris](https://www.education.gov.au/national-collaborative-research-infrastructure-strategy-ncris)

The national facilities hosted by Australia's government research organisations are world-renowned and are highlighted in the section 'Who to partner with in Australia'.

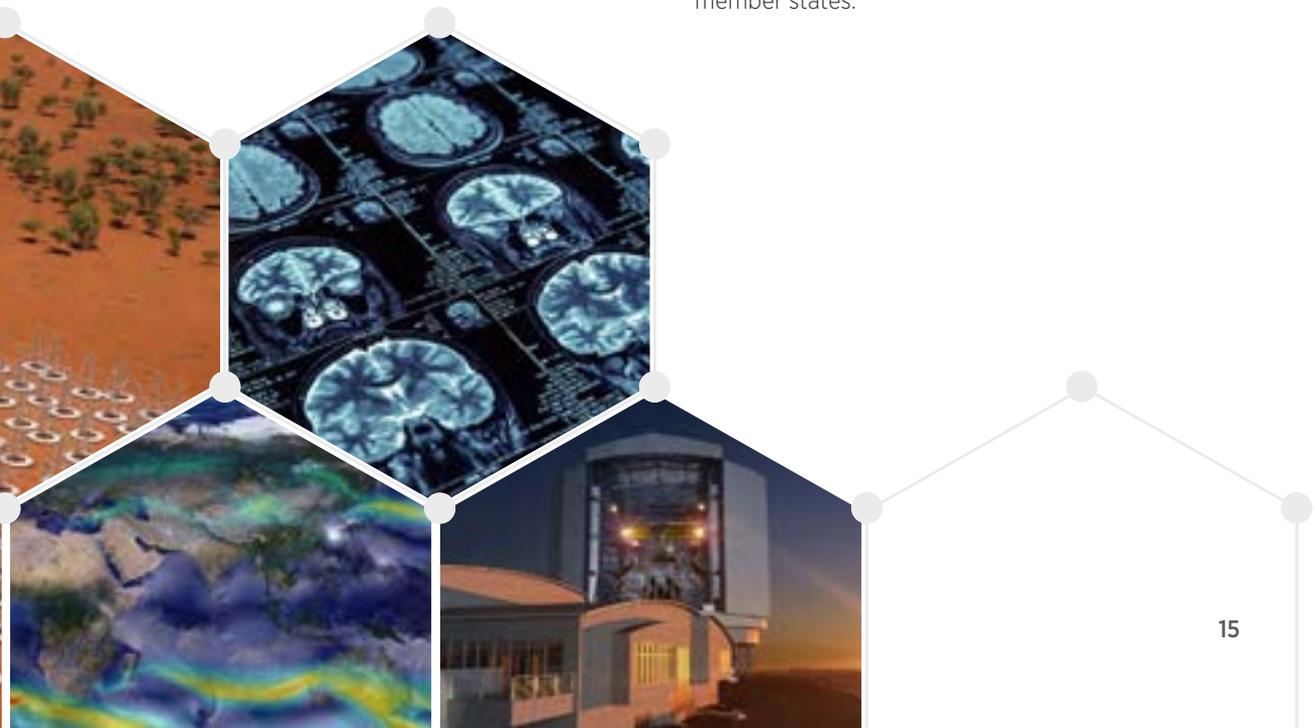
International engagement is a critical element of Australia's research infrastructure landscape. Researchers need access to domestic and international world-class research infrastructure necessary to drive internationally significant and leading research results.

Australia has a strong history as a partner and leader in international activities. Many Australian research infrastructure facilities and projects are involved in international collaborations, including the Global Ocean Observing System, the Giant Magellan Telescope, the Global Bioimaging Project and the Research Data Alliance.

Australia will also be one of three host countries of the Square Kilometre Array Observatory (SKAO) – a global partnership currently involving 13 countries and many institutions around the world. The SKA Observatory will provide access to the most capable radio telescopes available, with construction expected to commence in 2021. Over its anticipated 50+ year lifetime, the SKAO is expected to expand our understanding of the universe and drive significant scientific and technological development.

In 2017, Australia entered into a 10-year Strategic Partnership with the European Southern Observatory (ESO). ESO is widely acknowledged to be the world's foremost astronomical organisation, operating a suite of world-class optical and infrared telescopes at multiple sites in Chile.

The Strategic Partnership with ESO will open up new avenues for scientific and industry collaboration between Australia and other ESO member states.



Who to partner with in Australia

National science and research agencies

Australia has a diverse range of world-renowned government research organisations. These organisations conduct long-term, mission-led research in critical areas for Australia and the world.





They have enduring international relationships and support research globally, including through their role as hosts for large-scale research infrastructure facilities and scientific collections.



Australian Government



AUSTRALIAN INSTITUTE
OF MARINE SCIENCE



AUSTRALIAN INSTITUTE OF MARINE SCIENCE

The Australian Institute of Marine Science (AIMS) is a leader in tropical marine science. Through strong collaborative links nationally and internationally, AIMS coordinates and delivers large-scale, long-term world-class marine research that benefits society, government and industry. AIMS' research underpins sustainable use of our marine resources for economic benefit whilst ensuring effective management and protection of our unique ecosystems. AIMS' scientists are involved in collaborative projects conducted in different countries with colleagues from a wide range of international organisations. AIMS' research has a strong focus on delivering solutions to the key challenges faced by our oceans. AIMS is applying new technology to significantly increase the reach and responsiveness of our science and will build new capabilities in critical areas such as coral reef restoration, ecological modelling, and decision science.

State-of-the-art infrastructure allows research and industry partners to further the collective knowledge of Australia's unique marine ecosystems and the challenges they face. The AIMS National Sea Simulator (SeaSim) is a world-class marine research aquarium facility for tropical marine organisms in which scientists can conduct cutting-edge research. Using SeaSim, Australian and international scientists can research the impact of complex environmental changes with large, long-term, experiments in which they can manipulate key environmental factors. Our people are our greatest asset, so we encourage innovation and operate with the highest standards of health and safety.

The AIMS research fleet provides access to all of Australia's tropical marine environments. Two large purpose-built ships, the *RV Cape Ferguson* and the *RV Solander*, and a number of smaller vessels, take researchers to the diverse habitats that make up Australia's tropical marine estate.

aims.gov.au





AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION

The Australian Nuclear Science and Technology Organisation (ANSTO) is Australia's national nuclear research and development organisation and is the focus of nuclear expertise in Australia. It produces and uses radioisotopes, isotopic techniques and nuclear radiation for medicine, science, industry, commerce and agriculture.

ANSTO has collaborations with diverse international partners with a view to stimulating joint activities for the advancement of science and engineering and, subsequently, innovation.

ANSTO manages a number of unique research facilities, including the:

- **Open Pool Australian Lightwater (OPAL) reactor**—one of the world's most effective multi-purpose research reactors. The OPAL reactor is home to Australia's vital nuclear medicine manufacturing capabilities and specialised irradiation services for industry and research. Its neutron beams are used to solve complex research and industrial

problems applicable in a wide range of fields, such as chemistry, physics, materials science, engineering, earth sciences, life sciences and cultural heritage

- **Australian Synchrotron**—a world-class research facility that produces light (synchrotron radiation) many times brighter than the sun to see the invisible structure and composition of materials from the macroscopic to the atomic—with a level of detail, speed and accuracy not possible in conventional laboratories—for diverse scientific and industrial applications
- **Australian Centre for Accelerator Science**—includes four operating accelerators used to analyse materials to determine their elemental composition and age, fundamental to advancing knowledge in areas such as water management, understanding ecosystems and climate science

ansto.gov.au





Australian Government



Australian
Space Agency



AUSTRALIAN SPACE AGENCY

The Australian Space Agency commenced operations on 1 July 2018. It will transform and grow a globally respected Australian space industry that lifts the broader economy and inspires and improves the lives of Australians. This will be underpinned by strong international and national engagement. The Agency's responsibilities include:

- providing national policy and strategic advice on the civil space sector.
- coordinating Australia's domestic civil space sector activities.
- supporting the growth of Australia's space industry and the use of space across the broader economy.
- leading international civil space engagement.
- administering space activities legislation and delivering on our international obligations.

- inspiring the Australian community and the next generation of space entrepreneurs.

In April 2019 the Agency released the Australian Government's space strategy, *Advancing Space: Australian Civil Space Strategy 2019-2028* (the Strategy). National and international engagement is central to the Strategy, and a key focus of the Agency. Through its international engagement, the Agency seeks to set conditions that open doors for the Australian space sector internationally, to grow a connected, respected and globally competitive sector in Australia.

For information about the Australian Space Agency's Moon to Mars initiative and International Space Investment initiative, which provide support for collaboration, please see page 49.

space.gov.au





Australian Government
Bureau of Meteorology

BUREAU OF METEOROLOGY

The Bureau of Meteorology has an ongoing commitment to world-class research that supports and advances the quality, breadth, timeliness and utility of its products and services. The Bureau research and development team's overarching goal is to provide underpinning science and technology for environmental information to support decision-making over timescales from minutes to decades.

The Bureau's climate research and weather services have high-value applications in the aviation, maritime, defence, emergency management and agriculture sectors.

The Bureau collaborates with and leverages from its national and international partners on cutting-edge research that improves service delivery to the Australian community and contributes to global endeavours in weather, climate, water and oceans. Through formal representation at national and international levels the Bureau contributes valued advice and direction across environmental domains.

bom.gov.au





COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia's national science agency, and one of the largest and most diverse research agencies in the world. CSIRO focuses on delivering positive impact from science and technology across disciplines in areas as diverse as agriculture, health, space science and manufacturing.

Overall, CSIRO works in over 80 countries and is ranked in the top one per cent of world scientific institutions in 13 of 22 research fields. It has 5500+ experts in 57 sites across the world, with formal representation in Chile, USA, Vietnam, Indonesia, Singapore and France. CSIRO collaborates with leading organisations around the world including governments, universities, research agencies and corporate partners, and is recognised for its ability to create measurable economic, environmental and social impact that answers the world's greatest challenges. This opportunity to collaborate across different areas of cutting-edge science and technology is a unique advantage.

CSIRO has Australia's largest patent bank and has created more than 170 startup companies from its science and technology, transforming science into commercial success that reinvents existing industries and creates new ones. CSIRO is also the custodian of collections of animal and plant specimens that contribute to national and international biological knowledge. CSIRO hosts a number of Australia's national research facilities and scientific infrastructure. These research facilities and specialised laboratories are available to both international and Australian users from industry and research.

Facilities include:

- **Australian Animal Health Laboratory (AAHL)**—helps protect Australia's multi-billion dollar livestock and aquaculture industries, and the general public, from emerging and established infectious disease threats through scientific research, providing policy advice and training, and diagnosis, surveillance and response capabilities. It plays a vital role in maintaining the health of Australia's animals, the international competitiveness of Australian agricultural trade, the well-being of Australians and the quality of our environment
- **Australian Telescope National Facility (ATNF)**—comprises a number of world-class radio astronomy observatories that support Australia's research in radio astronomy and can be used by researchers from institutions all over the world. ATNF manages the Murchison Radio-astronomy Observatory (MRO) where the Square Kilometre Array telescope infrastructure in Australia is to be centred. This international project is a strategic priority for ATNF
- **Canberra Deep Space Communications Centre (CDSCC)**—one of three Deep Space Network stations around the world providing continuous, two-way radio contact with spacecraft exploring our solar system and beyond. It is managed by CSIRO on behalf of the United States National Aeronautics and Space Administration (NASA)

- **Marine National Facility**—supports Australian scientists and their international collaborators to carry out world-class, blue-water research that addresses national challenges in oceanography, climatology, fisheries, marine ecosystems, environmental science and geosciences. It includes the national research vessel RV *Investigator* commissioned in 2015
- **Pawsey Supercomputing Centre**—hosts the supercomputing facilities and expertise to support the Square Kilometre Array pathfinder research, geosciences and other high-end science as well as delivering and supporting world-class advanced ICT infrastructure
- **National Research Collections Australia (NRCA)**—constitute a vast storehouse of information about Australia’s biodiversity and underpin a significant part of the country’s taxonomic, genetic, agricultural and ecological research—making these vital resources for conservation and the development of sustainable land and marine management systems.

NRCA includes:

- the Australian National Insect Collection
- the Australian National Wildlife Collection
- the Australian Tree Seed Centre
- the Australian National Fish Collection
- the Australian National Algae Culture Collection
- the Australian National Herbarium
- the Atlas of Living Australia (ALA)

The ALA provides free, online access to a vast repository of information about Australia’s amazing biodiversity and supports research, environmental monitoring, conservation planning, education, and bio-security activities.

CSIRO partners with thousands of companies, research organisations and universities to develop and take new technologies to market and deliver positive impact for Australia and the world through partnerships, joint ventures, co-investing and licencing.

csiro.au



Case Study—CSIRO

CSIRO is working on some of the biggest challenges facing Australia and the world, from drought, future industries, and creating a strong economy through to developing new market opportunities.

In response to the drought Australia is facing, CSIRO has generated a number of solutions to address concerns around agriculture and food security. For example, the National Drought Map brings together disparate information to help deliver support to drought-affected areas that need it most. Another system, Digital Agriculture Services (DAS), integrates decades of data on soil and crop yields into a decadal climate model that predicts rainfall, yield and risk.

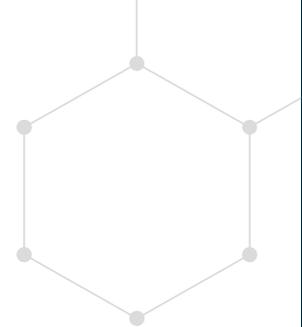
CSIRO is also working on improving wheat yields and profitability. This includes:

- Protecting Australia's \$7 billion wheat industry, which is vital for economic and food security
- Increasing wheat yields by as much as 25 per cent through fast winter wheat variables and adopting CSIRO-developed practices of early sowing. This equates to an additional 7.1 million tonnes of wheat harvested each year, worth approximately \$1.8 billion to the economy

In addition, CSIRO is researching ways to integrate Australia's vast renewable energy resources into the domestic energy mix, as well as to generate new export markets. CSIRO's National Hydrogen Roadmap, released in 2018, noted that Australia has the resources and skills to build an economically sustainable domestic and export hydrogen industry, which can help meet agreed emissions targets and address concerns around energy security. One way to overcome the limitations of hydrogen is to convert it to ammonia for storage and transportation through existing transport infrastructure, then convert it back to high-purity hydrogen at or near the point of use.







Australian Government
Geoscience Australia

GEOSCIENCE AUSTRALIA

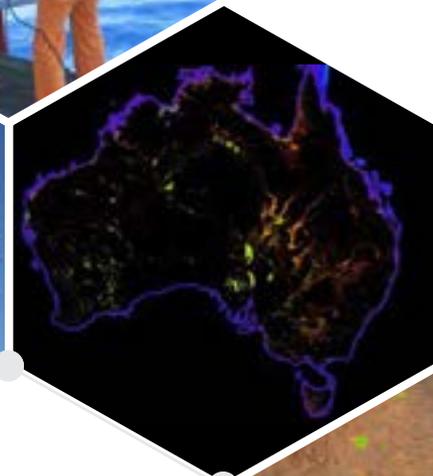
Geoscience Australia is the national public sector geoscience organisation. Covering the Australian landmass, marine jurisdiction and territories in Antarctica, it is the trusted source of information on Australia’s geology and geography, informing government, industry and community decision-making.

The organisation’s work aligns with the national science and research priorities and supports global and domestic government activities. Its data and expertise impacts six key areas of society:

- maximising the value from Australia’s abundant mineral and energy resources
- strengthening the nation’s resilience to the impact of hazards
- optimising and sustaining Australia’s water use
- supporting the sustainable use of the Australian marine environment
- using digital mapping for faster and smart decision making
- equipping government, industry and the community with geoscience data and information to make informed decisions.

Australia’s position on the globe places it in an ideal spot to assist in acquiring satellite data for northern hemisphere satellite operators to obtain comprehensive Earth observation coverage. Geoscience Australia plays an important role in global Earth observation operations through international collaboration.

ga.gov.au



Case study—Digital Earth Australia

In the 2018-19 Budget, the Australian Government committed \$36.9 million, over four years, to Geoscience Australia's Digital Earth Australia (DEA) program. Focused on harnessing the untapped potential of satellite imagery, DEA will see Geoscience Australia utilise leading Earth observation capabilities to provide the high-quality data and tools required for policy and investment decision-making.

Australia's dry and highly variable climate and our growing demand for water means we need to use the best available science and technology to more effectively manage water use and secure our future.

Before we can sustainably manage water, we need to better understand where it is and how it interacts with the landscape and climate. To address these challenges, Geoscience Australia, through the DEA program, provides routine, reliable and robust intelligence about the Earth, including its water resources and how these have changed over time.

By translating data from the world's leading Earth observation satellites into free, ready-to-use insights about Australia's natural and built environment the DEA program provides free and open access to satellite data prepared for Australian conditions. This data provides farmers, land managers, industry and government the information they need to make better decisions about how they care for and use their resources more sustainably and productively.

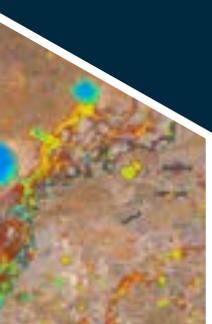
The program's Water Observations from Space (WOfS) product, available via National Map, shows how often water is seen over all of Australia since 1986. This can be used to better understand where water usually occurs across the continent and to plan water management strategies. WOfS can assist in making decisions regarding the sustainable use of water and historical risk modelling to plan for future floods, hazards and other natural disasters.

Applying free and open satellite data to environmental, economic and social challenges has the potential to deliver information and applications that have great impact at local, regional and global scales. Through the DEA, Geoscience Australia is one of six institutional partners driving the implementation of the open source analysis platform developed as part of the Open Data Cube initiative. These technologies are being developed and deployed in over 40 countries around the world. The common platform provides an excellent opportunity for developers to export their applications to other countries. DEA's free ready-to-use insights help ensure the planet's most precious natural resources are available for future generations.

ga.gov.au/dea

The middle image of Australia shows how WOfS works across the whole continent, indicating the sparsity of permanent water and the extent of the major floods over the last 30 years.

The bottom WOfS image shows the Menindee Lakes in western New South Wales, illustrating the lack of permanent water in a set of lakes along the Darling River, which provides Broken Hill with its water supply. The small number of areas shown in blue and purple colours, and the large amount of red to green colours, shows that for most of the last 30 years, the Menindee Lakes has been a largely ephemeral lake system.



**Advanced Manufacturing****Cyber Security****Food and Agribusiness****Medical Technologies and
Pharmaceuticals****Mining Equipment,
Technology and Services****Oil, Gas and Energy
Resources**

INDUSTRY GROWTH CENTRES INITIATIVE

Australia has established the Industry Growth Centres Initiative to drive innovation, productivity and competitiveness and help Australia transition into smart, high value and export focused industries. Growth Centres have four main areas of focus which includes an international focus, with each Centre engaging with international markets and facilitating firms and their sectors to access global supply chains, as well as creating national and international collaborative opportunities. They are a key source of knowledge and network opportunities in each industry sector.

Six Growth Centres have been established in target sectors of competitive strength and strategic priority, including:

- Advanced Manufacturing, known as the Advanced Manufacturing Growth Centre (AMGC)
- Cyber Security, known as AustCyber
- Food and Agribusiness, known as Food Innovation Australia Ltd (FIAL)
- Medical Technologies and Pharmaceuticals, known as MTPConnect
- Mining Equipment, Technology and Services, known as METS Ignited
- Oil, Gas and Energy Resources, known as National Energy Resources Australia (NERA)

Each Growth Centre develops and implements a long term, 10-year strategic vision known as a Sector Competitiveness Plan, a strategic vision for their sector. These Plans identify challenges and opportunities for industry growth and inform science and research communities, enabling them to align their research and collaborations to meet industry needs. By providing this industry-led vision, the Growth Centres are bringing focus and alignment across industry and innovation initiatives.

Growth Centres connect industry to research and technical expertise to solve challenges and increase the productivity and competitiveness of their sectors. As such, they represent national collaboration networks working alongside other government flagship initiatives including the CRC Program.

Growth Centres are also providing the vision, leadership and national connectivity for the SME Export Hubs Initiative. The Hubs are collaborative business networks. They will boost the export capability of local and regional businesses through supporting activities such as developing collective brands, leveraging local infrastructure to scale business operations, and positioning regional businesses to participate in global supply chains.

industry.gov.au/growthcentres

INNOVATION PRECINCTS

Australia recognises the important role innovation precincts play in establishing networks and concentrations of industry, university and science agency researchers, education institutions and community partners in one place, to facilitate collaboration.

Successful innovation precincts encourage increased collaboration between researchers, businesses, workers and entrepreneurs fostering innovation, knowledge transfer, and commercialisation to drive sustainable economic growth and job creation.

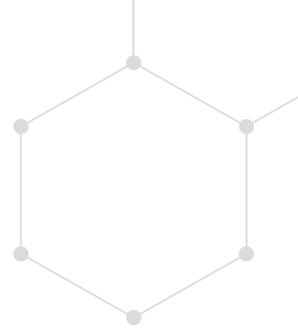
A national map of active, emerging and planned innovation precincts is available at innovationmap.global.





Australian Government
**Department of Industry, Science,
Energy and Resources**

**National
Measurement
Institute**



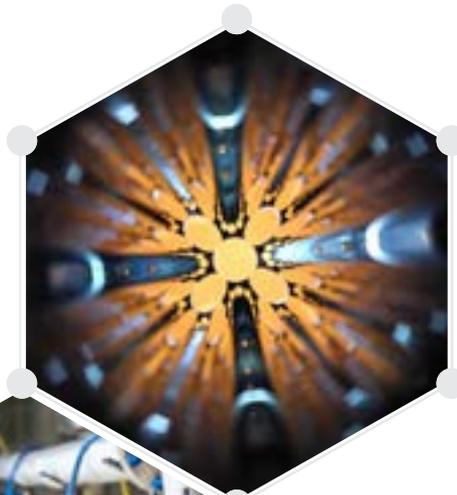
NATIONAL MEASUREMENT INSTITUTE

The National Measurement Institute (NMI) is Australia's 'one-stop shop' and peak body for measurement. Sitting at the interface between national and international systems, NMI ensures the international credibility of Australia's measurement infrastructure, thereby reducing technical barriers to trade, enabling innovation and supporting investment.

Through research collaborations with international counterparts, NMI fosters innovation in fields such as advanced manufacturing and enabling technologies, and helps address practical measurement challenges in sectors such as energy, health and food security.

NMI uses its international engagements to strengthen its broad range of scientific and technical capabilities and associated delivery of expertise, services and technology transfer to many sectors of the economy.

measurement.gov.au

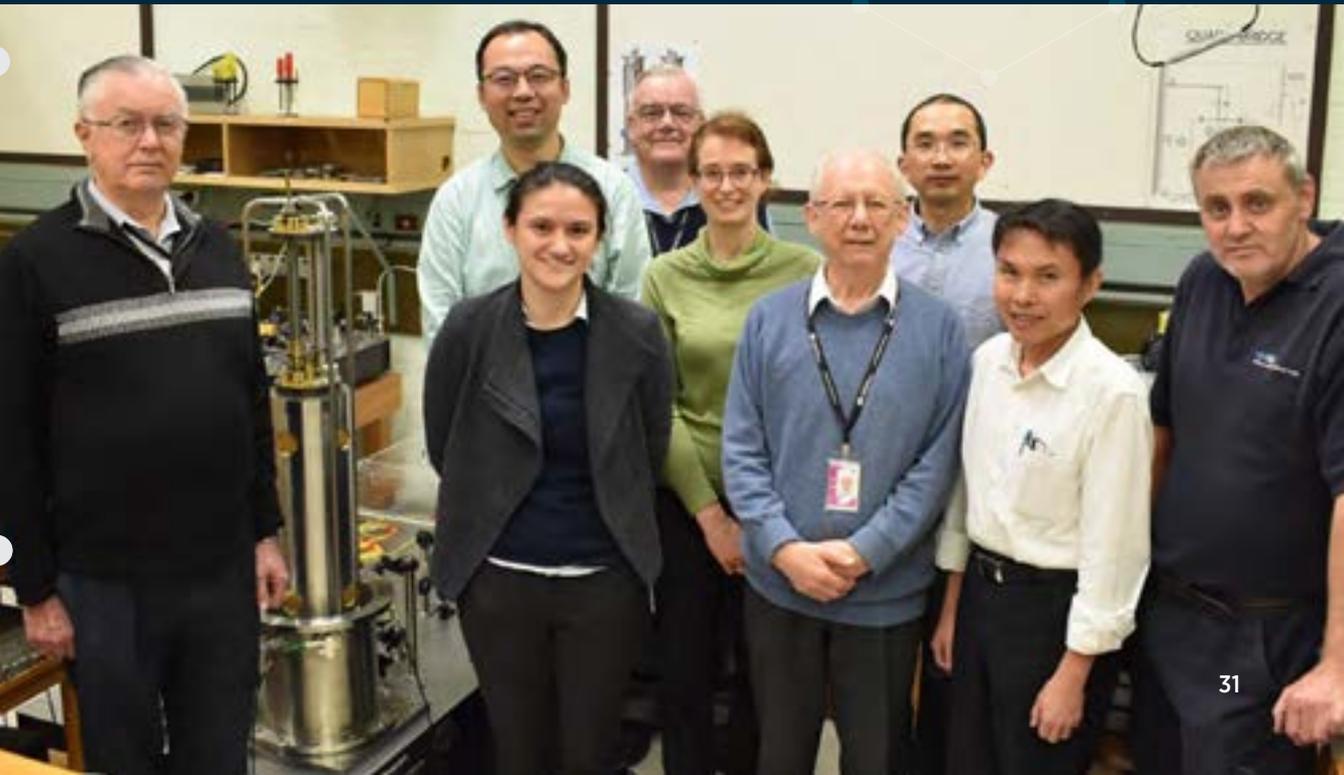


Case study—Next-generation electrical measurement standards

Building on its historical leadership in this field, NMI's world-class expertise in research has been drawn on to develop the next generation standard for capacitance (one of the fundamental quantities for electrical measurement). This has brought together collaborators from China and Canada as well as the international coordinating body for scientific measurement, the International Bureau of Weights and Measures, located in Paris.

Measurement of electrical quantities including capacitance now has growing importance as renewable sources of energy are being introduced into electricity transmission and distribution networks. Renewable sources of energy and energy-efficient equipment, connected to the grid, can affect the quality and security of the energy supply. Accurate measurement of capacitance helps measure the power quality parameters and ultimately enable the uptake of the new technology.

Four systems of NMI's design are being developed worldwide – in Australia, China, Canada and France, with two already in operation. These are producing measurements of electrical capacitance of unprecedented accuracy.





AUSTRALIAN ASTRONOMICAL OPTICS

The Australian Astronomical Optics (AAO) Consortium, established on 1 July 2018, involves four partners that form a National Optical Astronomy Instrumentation Capability. In collaboration with industry, the consortium develops world-leading innovative instrumentation and enabling technology capabilities for national and international astronomical telescopes facilities, such as the [European Southern Observatory](#) and [Giant Magellan Telescope](#).

The Consortium evolved from the Australian Astronomical Observatory under the Department of Industry, Innovation and Science and now comprises the following parties under the guidance of the AAO-Board:

- Macquarie University, in the form of a new department, [Australian Astronomical Optics-Macquarie](#) within the Faculty of Science and Engineering, made up of staff and facilities from the North Ryde site of the former Australian Astronomical Observatory.

- Australian National University (ANU), through its [Advanced Instrumentation Technology Centre \(AITC\)](#) within the Research School of Astronomy and Astrophysics, as Australian Astronomical Optics-Stromlo.
- The University of Sydney, through elements of the SAIL photonics laboratories within the School of Physics, as [Australian Astronomical Optics-USydney](#).
- [Astronomy Australia Limited](#), that facilitates access for Australian-based astronomers to the best research infrastructure, encourages the sharing of astronomical technical capabilities to maximise their value to the nation, and inspires Australians with these astronomical achievements.

The AAO consortium has a very broad range of scientific and technical facilities, expertise and service capabilities that support the development of key technologies, instruments and telescopes facilities.

aao.org.au



SIDING SPRING OBSERVATORY

Siding Spring Observatory (SSO) is Australia's premier optical and infrared observatory. Established by the Australian National University (ANU) in 1962, SSO sits high upon Mount Woorut on the edge of the Warrumbungle National Park in central western NSW. This isolated site, which is located within Australia's first Dark-Sky Park, provides astronomers with pristine skies, free of light pollution.

SSO is home to the 3.9-metre diameter Anglo-Australian Telescope (AAT), Australia's largest optical telescope. Up until 1 July 2018, the AAT was operated by the Australian Astronomical Observatory under the Department of Industry, Innovation and Science. The AAT is now operated by a consortium of Australian universities led by the ANU and is managed by Astronomy Australia Limited.

SSO is also home to over a dozen other facilities that are run by national and international organisations. These organisations have chosen SSO because of its clear, dark skies, established infrastructure, and geographical location.

The facilities at SSO are used to conduct world leading astronomy and astrophysics research, with special focus on wide-field surveys and transient phenomena. In conducting this research, SSO is training the next generation of astronomers, engineers, and technicians. SSO serves as a cost-effective test-bed for locally-designed instruments, and as a place to engage and educate the general public. SSO brings important tourism and economic benefits to regional Australia.

rsaa.anu.edu.au/observatories/siding-spring-observatory



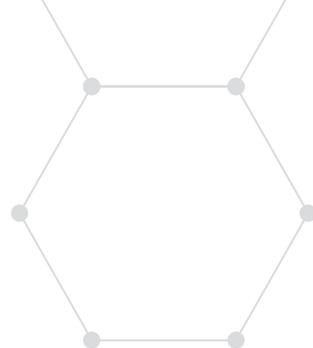
David Malin, copyright AAO

Left image: AAO-Stromlo at the Mt. Stromlo Observatory, Australian National University

Right Photo credit: Daniel Bonello, Siding Spring Observatory



Australian Government
**Department of Agriculture,
Water and the Environment**
Australian Antarctic Division



AUSTRALIAN ANTARCTIC DIVISION

The Australian Antarctic Division of the Department of Agriculture, Water and the Environment, based in Hobart, Tasmania is responsible for leading, coordinating and delivering the Australian Antarctic Program and for advancing Australia's national interests in Antarctica and the Southern Ocean.

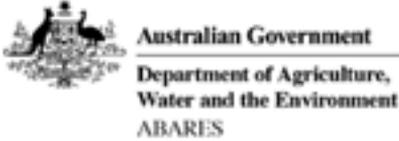
The Australian Antarctic Program is focussed on conducting world-class science of critical national importance and global significance. It utilises combined sea, air and continental transport capabilities to undertake wide-ranging marine, ice and aviation-based research activities.

Since 1986 the Australian Antarctic Division has been providing funding and logistics support to Australian and international participants through the Australian Antarctic Science Grants program. The research priorities for this program are articulated in the Australian Antarctic Science Strategic Plan.

The Australian Antarctic Program is highly collaborative – comprising partnerships across government and national and international universities, research programs and national Antarctic programs. The Program also collaborates with the Antarctic Science Foundation, an independent fundraising organisation, which provides opportunities for the private sector to partner with government to support world-class scientific research.

Antarctica is a place of peaceful, scientific cooperation. Australia's activities to protect, administer and research the Antarctic region are conducted within the strong international framework of the Antarctic Treaty system. Australian priorities and future plans in Antarctica can be found in the [Australian Antarctic Strategy and 20 Year Action Plan](#) antarctica.gov.au





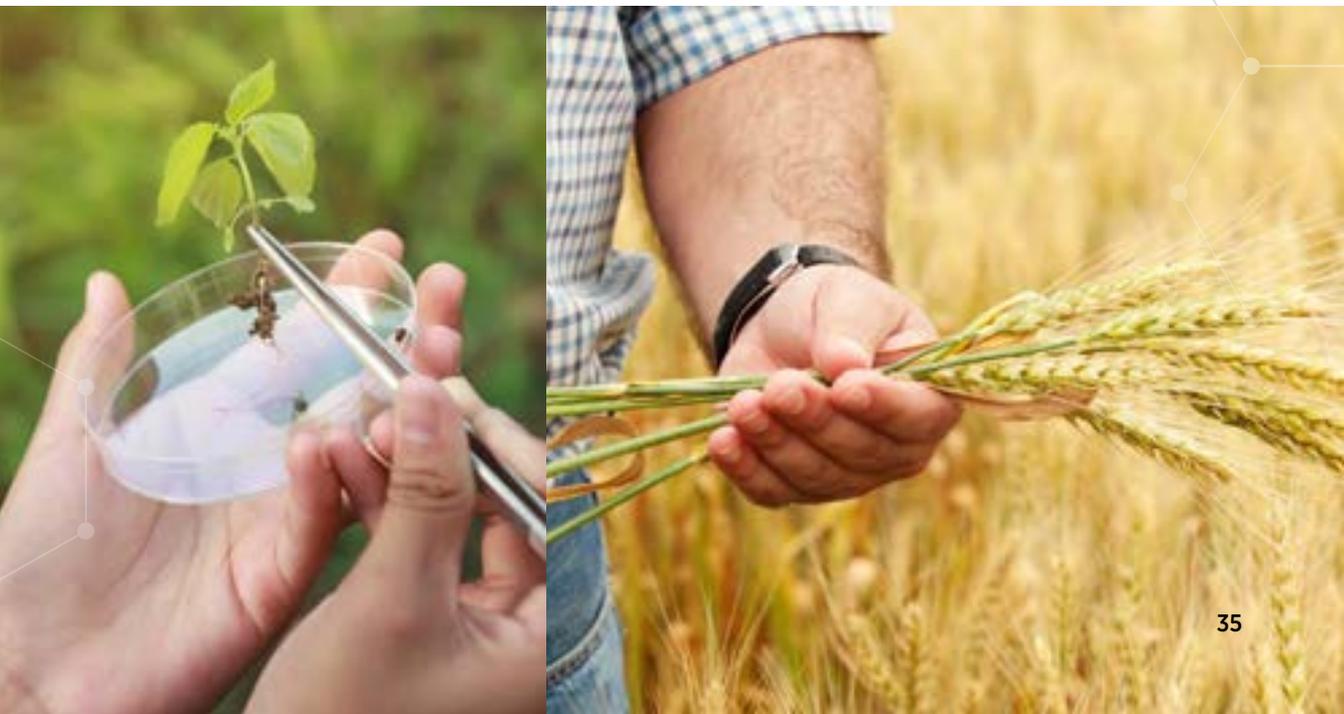
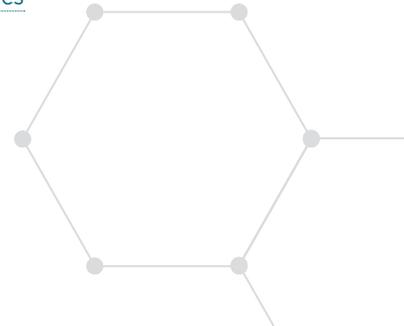
AUSTRALIAN BUREAU OF AGRICULTURAL AND RESOURCE ECONOMICS AND SCIENCES

The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) provides professionally independent forecasts and strategic intelligence to inform public and private decision-making on significant issues affecting Australia's agriculture, fisheries and forestry industries.

ABARES has a wealth of expertise in applied economic and scientific research, developing innovative modelling techniques, undertaking comprehensive surveys and developing internationally recognised data management processes. ABARES also provides integrated socio-economic and biophysical analysis to address the policy issues facing Australia's primary industries today and into the future.

In contributing to policy development, ABARES examines the full range of options potentially available to policy makers and, at times, may enter into public discussion on its research findings and on the consequences of different policy options. ABARES also takes a collaborative approach to research and policy analysis, working with external experts and partners both within and outside Australia, including the CSIRO and the Centre of Excellence for Biosecurity Risk Analysis.

agriculture.gov.au/abares





AUSTRALIAN FEDERAL POLICE (AFP) FORENSICS

The Australian Federal Police (AFP) is Australia's National Policing Agency. AFP Forensics is comprised of a broad range of specialist forensic capabilities that support the AFP's national and international policing. AFP Forensics delivers its technical capabilities through leadership, collaboration, learning and innovation, and maintains strong relationships with domestic and international partners and stakeholders.

A rapidly evolving and complex operating environment requires a risk-based approach, balancing innovation and responsiveness with scientific reliability, credibility and excellence to ensure relevance and impact.

AFP Forensics engages with our counterparts, academic partners and industry in Australia and offshore in supporting effective and credible research to address knowledge and scientific gaps in forensic science. This includes adapting traditional technologies in non-traditional ways and applying new and emerging technologies to forensic sciences.

afp.gov.au





Australian Government
Department of Defence
 Science and Technology

DEFENCE INNOVATION SYSTEM

The Australian Department of Defence now has a single innovation development pipeline, with two signature innovation programs: the Next Generation Technologies Fund and the Defence Innovation Hub.

The Centre for Defence Industry Capability (CDIC) can help businesses wanting to work with Defence to access the innovation system.

business.gov.au/Centre-for-Defence-Industry-Capability/Defence-Innovation

DEFENCE INNOVATION HUB

The Defence Innovation Hub is investing around \$640 million over ten years to support the maturation and further development of early-stage technologies.

The Hub pulls together research institutions, academia, industry and innovative technologies.

innovationhub.defence.gov.au

DEFENCE SCIENCE AND TECHNOLOGY GROUP

The Defence Science and Technology Group (DST) is the Australian Government's lead agency responsible for applying science and technology to safeguard Australia and its national interests.

DST works closely with industry, universities and the scientific community to support Australia's defence and national security capabilities. An example is the \$730 million (over ten years) [Next Generation Technologies Fund](#), which will be delivered via collaborative programs with academia, publicly funded research agencies, industry (particularly small and medium enterprises) and Australia's allies.

One such collaborative program is the \$25 million (over nine years) [US-Australia International Multidisciplinary University Research Initiative \(AUSMURI\)](#), whereby Australian Defence provides grants to support multi-disciplinary teams of Australian university researchers who collaborate with US Defense sponsored academic colleagues on high priority projects for future Defence capabilities.

DST pursues active collaboration with defence and national security communities of interest nationally and internationally.

dst.defence.gov.au

UNIVERSITIES

World-leading research occurs at universities of all shapes and sizes throughout Australia, spanning the sciences, the social sciences, the arts and the humanities. All of Australia's universities – 40 Australian and two international – engage in research. Many universities have campuses in other countries, and strengthening research connections is a specific objective. Universities in Australia attach high importance to fostering international relationships, working hard to build trust and shared expertise.

Universities Australia (UA) is the peak body that represents Australian universities both nationally and internationally, with 39 universities current members. UA acts to influence national policy in ways that affirm Australia's position as a highly innovative, educated and globally-oriented nation.

While all universities pursue their own international relationships, UA has an important role in fostering global research and innovation collaboration on behalf of its members. UA's website includes the details of key contacts within each university.

universitiesaustralia.edu.au

Just over half of Australia's universities are also part of groups formed to promote the mutual objectives of their member universities, including building international collaboration:

- **Group of Eight**—go8.edu.au
- **Australian Technology Network of Universities**—atn.edu.au
- **Innovative Research Universities**—iru.edu.au
- **Regional Universities Network**—run.edu.au



EXCELLENCE IN RESEARCH FOR AUSTRALIA

Excellence in Research for Australia (ERA), which is managed by the Australian Research Council (ARC), is a comprehensive and detailed evaluation of the quality of Australia's university research. The most recent ERA report—[State of Australian University Research 2018-19](#)—demonstrates the breadth, depth and diversity of high-quality university research across the sciences, engineering, arts and humanities.

The [ERA outcomes comparison tool](#) allows international researchers and businesses to identify current areas of research excellence, as well as changes and trends, as a basis for exploring future partnership opportunities.

ENGAGEMENT AND IMPACT ASSESSMENT

The ERA outcomes are complemented by the results of Australia's first national assessment of the engagement and impact of university research—Engagement and Impact (EI) 2018.

EI examines how universities are translating their research into economic, environmental, social and cultural benefits. The [Engagement and Impact Assessment 2018-19 National Report](#), together with more than [200 examples of best practice](#) of research impact available on

the ARC's website, provide rich information that demonstrates the extensive and diverse ways that Australian universities collaborate with business, community sectors and Government. The information helps prospective international business partners to identify where best practice research engagement is occurring across the Australian university sector and where future opportunities for collaborations with universities may lie.



BUSINESS

Businesses account for the highest proportion of research expenditure in Australia. Australia has world-leading innovative industries and companies in areas such as biotechnology and pharmaceuticals, clean energy, finance, mining technologies and agriculture.

Australia also has a strong home-grown tech sector, with startups and entrepreneurs being a large contributor to new jobs and innovation in Australia.

The Australian Government supports business innovation through the [Research and Development Tax Incentive](#), which provides

broad based, market driven assistance for all industries.

International partners have numerous opportunities to collaborate with Australian companies, invest in or incorporate Australian solutions into existing products and services, or enter into joint ventures to take Australian technologies to the global market. Australia has expertise at every stage of the global value chain, from the extraction and processing of raw materials, to the development and production of new materials, to design, testing and manufacture.

AUSTRADE

Austrade, Australia's trade and investment commission, is an excellent first point-of-contact for international organisations seeking to build partnerships and invest in Australia's innovative businesses.

Its publication, [Australia: Destination Innovation](#), highlights Australia's strengths and the wide range of opportunities available.

austrade.gov.au

Case study—Fighting cancer with innovative research

Australia's Peter MacCallum Cancer Centre is a world renowned cancer research, education and treatment centre, recognised for pioneering scientific breakthroughs and highly developed industry collaborations.

The Centre houses 600 researchers and students solely dedicated to cancer who have developed groundbreaking tests and treatments in different blood cancers, melanoma and skin cancer, lung cancer, oesophageal cancer, as well as breast, ovarian and uterine cancer.

The Centre has formal collaborative agreements with the MD Anderson Cancer Centre and the Dana-Farber Cancer Institute in the United States, and China's Fudan Shanghai Cancer Centre, and collaborates with other cancer centres worldwide. Over the last two years, it has also established three global industry collaborations with Roche-Genentech, Bristol-Myers Squibb and Glaxo-Smith-Kline to support lab-based and translational research in cancer immunotherapy, generating over \$10 million in joint project investment.

Austrade has been working closely with the Centre in key markets including the US, where it has facilitated discussions with major industry and research institutes.

The Centre has also participated in Austrade-led delegations to the US.





Australian Government
IP Australia

IP AUSTRALIA

IP Australia is the Australian Government agency that administers intellectual property (IP) rights and legislation relating to patents, trademarks, designs and plant breeder's rights. It contributes to the innovation system more broadly by using our skills and experience to advise government and Australian businesses to make the most of their IP.

ipaustrialia.gov.au

IP Australia's Source IP is a digital marketplace that provides a means for public sector patent holders to signal their licensing intent and promote their key areas of technology within a single platform. Source IP addresses a current barrier to collaboration and commercialisation in that business finds it hard to access information about available public sector IP. With Source IP, users can search through the research that's already been started by Australia's public sector research organisations and contact the researchers of interest.

Source IP is particularly focused on making it easier for Australian businesses, including small businesses, to access innovation and technology generated by the publicly funded research sector in Australia. The platform has been specifically created to help expose potential collaboration opportunities to businesses seeking to work with public sector research partners and to facilitate quick and easy contact.

sourceip.ipaustrialia.gov.au

To increase collaboration, cooperation and research opportunities amongst Intellectual Property Offices and their stakeholders IP Australia launched IPOcollab in late 2018. IPOcollab is a first for IP Offices to converse, collaborate, share knowledge and expertise, all in one online space hosted by IP Australia. It is simple to use and integrate, leveraging innovative ways of enabling partnerships and communication across geographical boundaries with stakeholders across the IPecosystem. IPOcollab has seen its gradual use and expansion to over fifteen Intellectual Property Offices and more than eighty users with an interest in knowledge sharing and cooperation on topics ranging from disruptive technology and cognitive computing to economic research and policy considerations. Users take advantage of IPOcollab daily; increasing international cooperation, reducing intra and interoffice work duplication, and improving interoffice project delivery with greater continuity and momentum following face to face meetings.

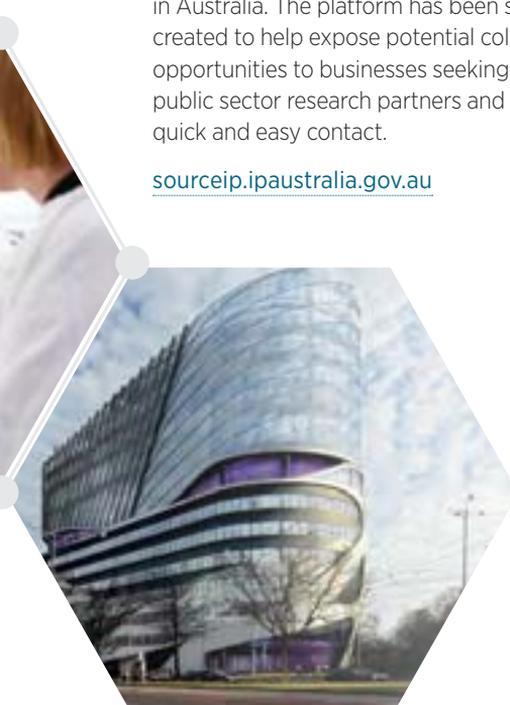
ipaustrialia.gov.au/beta/ipocollab

IP Australia and the Department of Industry, Science, Energy and Resources have also developed the IP Toolkit to help simplify the management of IP in collaborations between researchers and business. IP Toolkit gives users the information and tools to identify issues early on and build effective partnerships.

Collaborations can involve complexity in managing the interrelationships between confidentiality, use of existing IP, publication of information, commercialisation and decision making around IP rights. The toolkit includes:

- a collaboration checklist covering the key issues that need to be considered;
- contract, confidentiality agreement and term sheet templates; and
- guidance and information to help collaborating parties manage their IP.

ipaustrialia.gov.au/tools-resources/ip-toolkit



OTHER PARTNERS

There are a range of other science, research and innovation organisations in Australia that present opportunities for international collaboration. These organisations often bring partners together to respond to particular questions or areas of research. Key groupings of these organisations include:

Multidisciplinary organisations

Cooperative Research Centres—industry-led research partnerships between business, publicly funded researchers and the community—business.gov.au/crc

Medical research organisations

Medical research institutes—providing a direct link between laboratory-based research and clinical practice—aamri.org.au

National Health and Medical Research Council Centres of Research Excellence—teams of researchers developing capacity in clinical, population health and health services research—nhmrc.gov.au/funding/find-funding/centres-research-excellence



Agriculture and biosecurity organisations

Centre of Excellence for Biosecurity Risk

Analysis—delivers practical solutions and advice for assessing and managing biosecurity risks that informs the risk management role of the Department of Agriculture, Water and the Environment—cebra.unimelb.edu.au

Centre for Invasive Species Solutions

(CISS)—facilitates large scale collaboration between governments, industry, universities and other research organisations to improve invasive species—invasives.com.au

Plant Biosecurity Research Initiative

—supports cross-sectoral research development and extension to minimise the damaging consequences caused by biosecurity threats to Australian plant industries—pbri.com.au

Animal and plant health organisations

Animal Health Australia—facilitates innovative partnerships between governments, major livestock industries and other stakeholders to protect animal health, strengthen biosecurity, and foster the resilience and integrity of the Australian animal health system—animalhealthaustralia.com.au

Euphresco—coordinates transnational research programs on phytosanitary issues. The Australian Government's Department of Agriculture, Water and the Environment is the national contact point for Euphresco in Australia—euphresco.net

Plant Health Australia—national coordinator of the government-industry partnership for plant biosecurity in Australia—planthealthaustralia.com.au



Collaboration support

There are a range of Australian Government programs supporting international science, research and innovation collaboration, and details of the major schemes are outlined in the following section. It is recommended that individuals and organisations looking to collaborate with Australia first find a suitable partner or partners.

The Australian Government provides significant support to businesses, universities and research for their science, research and innovation activities, including international collaboration, so many Australian partners may be able to self-finance their participation.

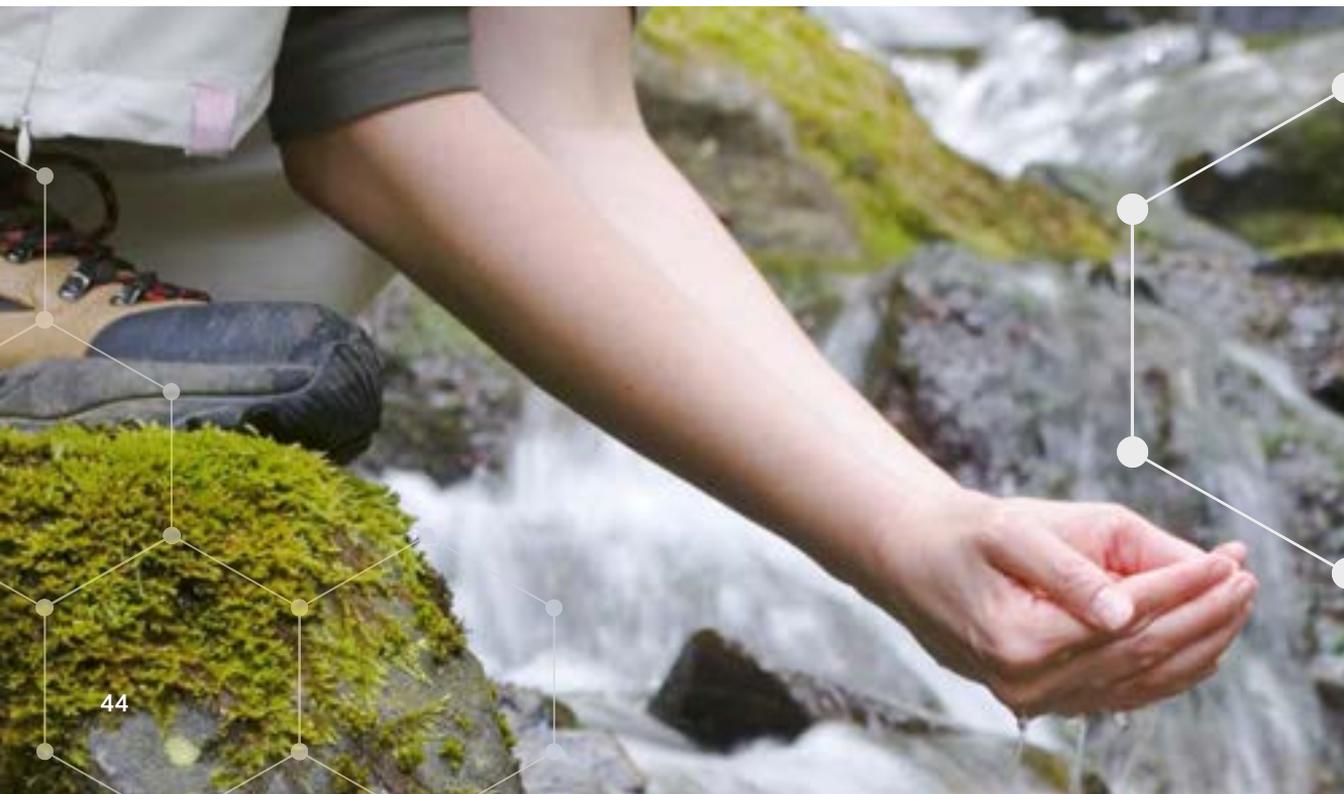
International and multilateral organisations also provide significant support for international collaboration on global challenges.

AUSTRALIA-CHINA SCIENCE AND RESEARCH FUND

The Australia-China Science and Research Fund (ACSRF) supports strategic science, technology and innovation collaboration between Australia and China.

industry.gov.au/funding-and-incentives/science-and-research/collaborating-with-china-on-science-and-research

The ACSRf facilitates activities that support enduring partnerships between Australian and Chinese researchers, encourage the application and commercialisation of research outcomes and provide early career researchers the opportunity to gain relevant Australia-China research experience.



AUSTRALIA-INDIA STRATEGIC RESEARCH FUND

The Australia-India Strategic Research Fund (AISRF) facilitates collaboration between Australian and Indian researchers, building longer-term alliances between Australian and Indian research organisations to support the continued development of both nations.

Under the AISRF, collaborative research projects promote research capacity and maximise the application, commercialisation and sustainability of research outcomes.

Targeted workshops connect Australian and Indian researchers to focus on issues of mutual interest or contemporary national challenges. Fellowships support researchers to work with their counterparts at major Indian science and technology organisations.

industry.gov.au/funding-and-incentives/science-and-research/collaborating-with-india-on-science-and-research

AUSTRALIAN RENEWABLE ENERGY AGENCY

The Australian Government supports investment in clean energy innovation through the Australian Renewable Energy Agency (ARENA). ARENA was established to improve the competitiveness of renewable energy technologies, and increase the supply of renewable energy in Australia.

ARENA provides grant funding to researchers, innovators and businesses for Australia-based renewable energy projects that bring forward innovative ideas and research, assisting them to become affordable and commercially viable.

As of June 2019, ARENA has invested around \$1.44 billion in 478 projects across Australia.

As a member of Mission Innovation, Australia has pledged to double government clean energy research and development expenditure on 2015 levels by 2020. ARENA contributes to this goal by providing Research and Development grants, as well as funding opportunities for Australian scientists to work with colleagues from other countries.

arena.gov.au



AUSTRALIAN RESEARCH COUNCIL

The Australian Research Council (ARC) is Australia's main funding agency for research grants and provides a variety of opportunities to support international research collaboration in all disciplines (although clinical and other medical research are primarily supported by the National Health and Medical Research Council). All ARC funding schemes are open to international researchers, provided applications are made through an eligible Australian institution.

The ARC's funding schemes include support for fundamental research, fellowships and collaborative research with industry, government and the community.

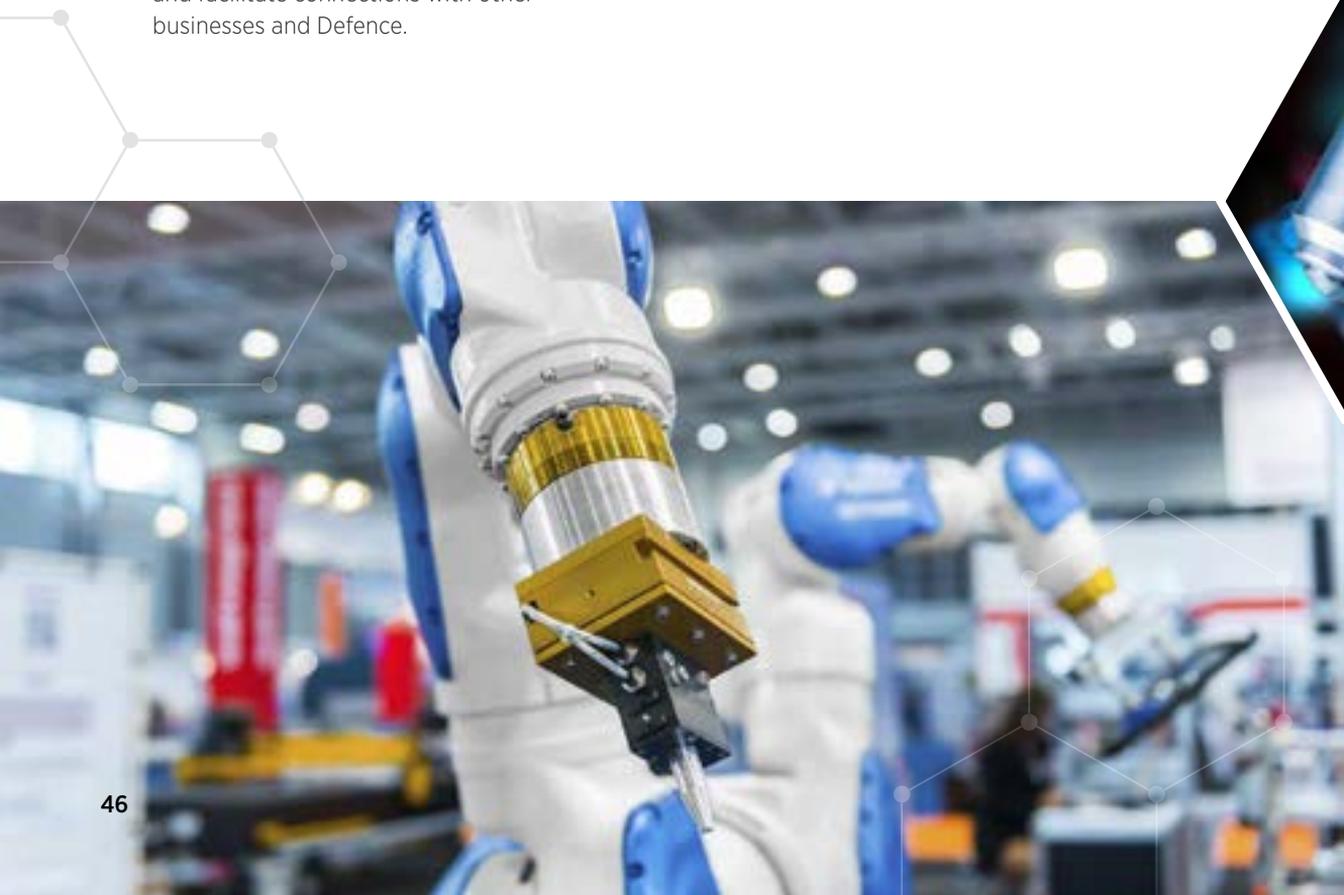
arc.gov.au/international

CENTRE FOR DEFENCE INDUSTRY CAPABILITY

The Centre for Defence Industry Capability (CDIC) works with Australian businesses to strengthen their capability to meet current and future Defence requirements. CDIC advisers help businesses navigate the defence market, provide specialist advice on improving competitiveness and accessing global markets, and facilitate connections with other businesses and Defence.

The CDIC can help businesses connect with the Defence Innovation System's two signature programs, Defence Innovation Hub and the Next Generation Technologies Fund.

business.gov.au/cdic



COOPERATIVE RESEARCH CENTRES PROGRAM

The Cooperative Research Centres (CRC) Program supports industry-led and outcome-focused collaborative research partnerships. There are two streams of funding under the program: CRCs and CRC Projects (CRC-Ps). CRCs are long term collaborations of up to 10 years with no maximum limit to funding. CRC-Ps are short-term collaborations of up to three years with a maximum of \$3 million in funding.

The partners collaborating in CRCs and CRC-Ps include businesses from multinational corporations to small and medium enterprises; universities and research institutions;

governments at all levels; not-for-profit organisations and community associations. The CRC Program has strong international collaborations with many international partners.

business.gov.au/crc



GLOBAL INNOVATION STRATEGY INITIATIVES

Global Innovation Linkages

The Global Innovation Linkages program supports Australian businesses and researchers to collaborate with global partners on strategically focused, leading-edge research and development projects. It supports projects focused on developing high quality products, services or processes that respond to industry challenges, with funding of up to \$1 million per grant over a maximum period of four years.

business.gov.au/GIL

Global Connections Fund

The Global Connections Fund supports Australian businesses and researchers to explore opportunities and collaborate on projects with global partners in areas of strategic importance to Australia.

It increases linkages and collaborations with partner economies; promotes researcher-industry engagement and knowledge transfer; and encourages translational activities, end use development and commercialisation outcomes.

globalconnectionsfund.org.au

Regional Collaborations Programme

The Regional Collaborations Programme assists Australian researchers and businesses to build strong linkages in the Asia-Pacific region by funding multi-partner science, research and innovation activities that deliver innovative solutions to shared regional challenges. These activities will, in turn, reduce collaboration barriers and promote an open approach to science, research and industry collaboration throughout the Asia-Pacific.

Funding support is available for single or multi-year collaborative projects, as well as collaborative workshops.

science.org.au/regional-collaborations-programme



MOON TO MARS INITIATIVE

The Moon to Mars initiative provides \$150 million over five years for Australian businesses and researchers to join NASA's inspirational plan to return to the Moon and then go on to Mars. The Moon to Mars initiative will support Australian businesses to access international space supply chains, create jobs in Australia and support the growth of industries across the economy through the development and application of space technologies. The initiative is comprised of three integrated elements that will lift Australian engagement in the global space sector:

- Supply Chain program—Targets projects and activities to build capability in Australia's space industry and support Australian industry to deliver products and services into the United States' and international space supply chains.
- Demonstrator program—Demonstrator and pilot projects showcasing Australia's strengths to the world by providing a pathway for Australian industry to develop and launch products that will create new capability, enabling new business ventures, revenue streams or markets.
- Trailblazer program—A major project supporting NASA's activities related to their return to the Moon and on to Mars.

Australia and the United States have partnered on space exploration for decades, and this initiative paves the way for future space co-operation with the United States and other international partners.

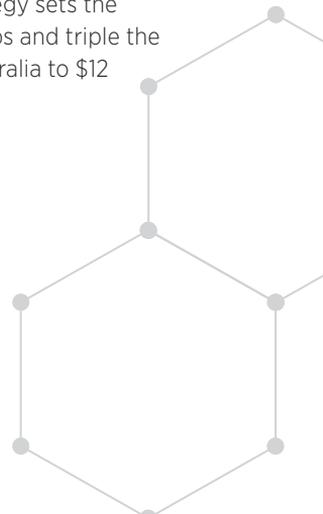
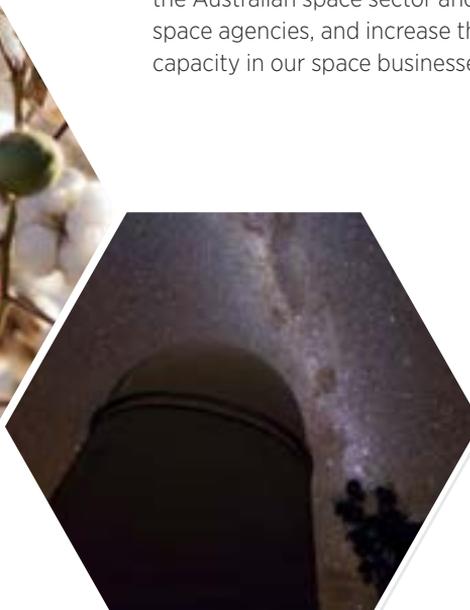
INTERNATIONAL SPACE INVESTMENT INITIATIVE

The International Space Investment (ISI) initiative provides \$15 million over three years to strategic space projects that grow the Australian space industry and build collaboration with international space agencies.

The International Space Investment initiative will enhance linkages and relationships between the Australian space sector and international space agencies, and increase the capability and capacity in our space businesses.

Projects will target a minimum of 80 per cent of the investment being made in Australia for the benefit of Australian space industry firms.

Together with the Moon to Mars initiative, the ISI initiative forms an important element of the Advancing Space: [Australian Civil Space Strategy 2019-2028](#). This strategy sets the path to create up to 20,000 jobs and triple the size of the space sector in Australia to \$12 billion by 2030.



MEDICAL RESEARCH FUTURE FUND

The Medical Research Future Fund (MRFF) provides grants to support health and medical research and innovation aimed at improving the health and wellbeing of Australians. Building to a \$20 billion perpetual fund, the MRFF represents a significant increase in Australia's commitment to health and medical research that is additional and complementary to the historic work of the NHMRC.

As well as improving the health of current and future generations through better health policies, technologies and medicines, the MRFF will drive economic outcomes by improving workforce participation and productivity. In the 2019-20 Budget, the Government announced its continued commitment to supporting lifesaving and job creating medical research by establishing a \$5 billion 10-year investment plan for the MRFF. This Plan will place Australia at the leading edge of research in areas like genomics and will support the search for new cures and treatments.

This Plan will also fuel jobs and growth in new firms and industries through research, providing highly skilled jobs, stimulating growth in exports, attracting clinical trial activity, and creating new market ecosystems.

The plan is underpinned by four key themes—patients, researchers, translation and missions encompassing 20 initiatives.

Recognising the value of international partnerships, the MRFF can co-invest with other public and private funders, domestic and global.

health.gov.au/mrff

Australia is also acknowledged internationally as a location of choice for high quality, safe clinical trials. Under the MRFF Australia is increasing public investment in clinical trial activity and research capacity to ensure Australia is at the forefront of testing, translation and commercialising new treatments, drugs and devices and remains an attractive location for national and international clinical trial activity.

As part of the 10-year MRFF Investment Plan, new funding of \$117.6 million over ten years was announced to support international clinical trial collaborations to enhance Australia's capability to lead and collaborate on research of global significance as well as bring benefits to Australian patients.

[AustralianClinicalTrials.gov.au](https://australianclinicaltrials.gov.au) is a joint initiative between the National Health and Medical Research Council and the Department of Industry, Science, Energy and Resources to provide information and resources to consumers, health care providers, researchers and industry about clinical trials.

australianclinicaltrials.gov.au



NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL

The National Health and Medical Research Council (NHMRC) is Australia's peak body for supporting health and medical research. NHMRC funding supports research across the full spectrum of health and medical research, from basic science through to clinical, public health and health services research.

NHMRC supports international engagement through a number of mechanisms, including:

- engaging in bilateral and multilateral funding arrangements
- permitting overseas based researchers on research grants
- allowing early career researchers to undertake advanced training at an overseas research institution
- influencing global research policies as a member of both international organisations and coordination fora
- supporting Australian researchers to access international programs

The NHMRC International Engagement Strategy outlines NHMRC's approach to working with its international partners.

nhmrc.gov.au/research-policy/international-engagement

RURAL RESEARCH AND DEVELOPMENT CORPORATIONS

Rural research and development corporations (RDCs) are the Australian Government's main vehicle for funding agricultural innovation. They include corporations devoted to the grains, horticulture, wine, sugar, cotton, red meat, pork, egg, dairy, wool, fisheries and forestry industries, as well as other industries covered by the Rural Industries RDC, now trading as AgriFutures Australia. RDCs are funded through a longstanding public-private partnership. This is a combination of industry levies and contributions from the Australian Government (up to 0.5% of the gross value of agricultural production).

Each RDC is responsible for planning, investing in and overseeing R&D activities. These activities are designed to improve production, sustainability and profitability in each industry. Many of the RDCs collaborate with international partners on research projects.

agriculture.gov.au/ag-farm-food/innovation/research_and_development_corporations_and_companies



AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURAL RESEARCH

The Australian Centre for International Agricultural Research (ACIAR) brokers and funds research partnerships between Australian scientists and their counterparts in developing countries. As world leaders in agricultural research, Australian scientists are encouraged and supported to use their skills for the benefit of partner countries while also contributing to solutions to meet Australia’s own agricultural challenges.

The diversity of our own agriculture sector, which extends from the tropics to the arid zone, continues to thrive while operating in highly variable and challenging climates with minimal external subsidies. Australian agricultural sector has valuable knowledge and expertise to share with other countries facing similar challenges, including farmers, rural poor, consumers, researchers and policymakers. ACIAR works with public and private research institutions in Australia and partner countries to address complex and intersecting challenges.

Since 1982, ACIAR has supported research projects in four regions—East and Southern Africa, East Asia, South and West Asia and the Pacific. Our research projects focus on crops, agribusiness, horticulture, forestry, livestock, fisheries, water and climate, social sciences, and soil and land management.

ACIAR generates and establishes research partnerships through three pathways:

- multilateral research collaborations
- co-investment alliances with development partners
- bilateral country partnerships.

ACIAR has commissioned and managed more than 1,500 research projects in 36 countries, partnering with 150 institutions along with more than 50 Australian research organisations.

aciarc.gov.au



Photo credit:
ACIAR



Investing in Australian startups and businesses

The Australian Government has put in place a range of programs to help Australian businesses, startups and entrepreneurs take their ideas to the world and attract investment from international partners, including under the National Innovation and Science Agenda.

Australia's Industry Growth Centres are playing a key role in this work, linking in to global supply chains and facilitating investment in new technologies and ways of doing business.

Australia is also seeking to attract top entrepreneurs, innovators and investors through its visa and tax arrangements.

BIOMEDICAL TRANSLATION FUND

The Biomedical Translation Fund (BTF) is a \$500 million equity co-investment venture capital program designed to support early stage investee companies that are developing and commercialising biomedical discoveries. The government has provided \$250 million which has been matched by private sector capital.

The BTF is helping translate biomedical discoveries into tangible products, services and outcomes to deliver long term health benefits and economic outcomes.

[business.gov.au/Grants-and-Programs/
Biomedical-Translation-Fund](https://business.gov.au/Grants-and-Programs/Biomedical-Translation-Fund)



BUSINESS INNOVATION AND INVESTMENT PROGRAMME

Australia's Business Innovation and Investment Programme is designed to increase entrepreneurial talent and diversify business expertise in Australia. There are a number of visa classes with specific streams, including the:

- **Entrepreneur stream** - for people who have a funding agreement from a third party to undertake a complying entrepreneurial activity that is proposed to lead to either the commercialisation of a product or service in Australia or the development of a business in Australia
- **Business Innovation stream** - for people with business skills who want to establish, develop and manage a new or existing business in Australia
- **Investor, Significant and Premium Investor streams** - for people who want to make an investment, and maintain business and investment activity in Australia

homeaffairs.gov.au/visas/getting-a-visa/visa-listing/business-innovation-and-investment

ENTREPRENEURS' PROGRAMME

The Entrepreneurs' Programme (EP) delivers advice, networking and grants to help Australian businesses grow, innovate and commercialise nationally and globally. This helps to drive economic growth and jobs, improving broader community outcomes.

EP provides businesses with flexible access to tailored advice from a national network of over 140 industry experts, along with connections, networking opportunities and matched grant funding. This support is provided through:

- **Business Management**—helps businesses grow by improving management capabilities, extending supply networks and taking advantage of growth and trade opportunities. Businesses may access supporting matched grants of up to \$20,000 to help implement recommendations from expert advisers
- **Innovation Connections**—helps businesses innovate by providing advice, connections and supporting matched grants of up to \$50,000 to collaborate with the research sector to develop new ideas with commercial potential
- **Accelerating Commercialisation**—helps businesses, entrepreneurs and researchers commercialise novel products, processes and services by providing expert advice and connections. Businesses may also apply for a competitive matched grant of up to \$1 million to support commercialisation
- **Incubator Support**—helps startups to develop business capabilities and achieve commercial success in international markets by providing funding to new and existing incubators and to second experts in residence to advise startups

business.gov.au/EP

LANDING PADS

As part of Australia's Global Innovation Strategy, Austrade has established Landing Pads in Berlin, San Francisco, Shanghai, Singapore and Tel Aviv.

Landing Pads provide market-ready Australian startups and scale-ups with access to some of the world's most renowned innovation and startup ecosystems.

This initiative enables startups to rapidly fine-tune their pitch, identify partners, customers and investors, and access global markets.

The Landing Pads also provide an easy access point for international partners seeking to invest in Australian ideas and technologies.

australiaunlimited.com/landing-pads

VISAS FOR INNOVATION

There is intense international competition for global talent in emerging sectors. Australia aims to attract the best and brightest to help grow a stronger economy and a more prosperous nation.

Over the last 18 months, the Government has announced several programs to help attract global talent to Australia:

The **Global Talent Independent program** commenced in July 2019, with an investment of \$12.9 million over three years, to actively identify high calibre candidates in Australia and overseas. Up to 5,000 permanent migration places are available for the program in 2019-20.

The **Global Talent Employer Sponsored program** (formerly known as the Global Talent Scheme) commenced in July 2018 and provides businesses with a streamlined process to sponsor overseas workers with cutting-edge skills, where there are no suitable Australians available. The Global Talent Employer Sponsored program has two streams: a Startup stream; and an Established Business stream.

The **Supporting Innovation in South Australia pilot** commenced in November 2018 to attract foreign entrepreneurs who will launch start-ups in South Australia, with the intention that, if successful, it will be rolled out nationally. The Department of Home Affairs is currently evaluating the pilot and will brief the Australian Government in 2019-20 on the results of this evaluation.

homeaffairs.gov.au/visas/working-in-australia/visas-for-innovation



OTHER VENTURE CAPITAL PROGRAMS

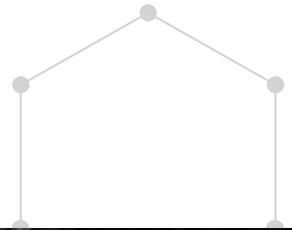
Equity and early stage finance is crucial for commercialising new ideas and encouraging new startups. Australia is providing incentives to encourage more investment in innovative startups.

The Australian Government has a suite of venture capital programs such as the:

- Early Stage Venture Capital Limited Partnerships (ESVCLP) business.gov.au/assistance/venture-capital/early-stage-venture-capital-limited-partnership
- Venture Capital Limited Partnerships (VCLP) business.gov.au/assistance/venture-capital-limited-partnerships

These programs provide investors a globally recognised investment vehicle with flow-through tax treatment (i.e. the partnership is not a taxing point) and tax exemptions on their share of the fund's income (under the VCLP program the exemption is limited to non-residents).

There are also tax incentives for individuals investing directly into innovative early stage companies.



Connecting individuals

Collaboration is built on the foundation of personal connections. Without these connections, trustful and impactful international partnerships are not possible.

Australia is supporting people-to-people connections through a range of initiatives, including many highlighted in earlier sections of this document.

AUSTRALIA AWARDS

Australia Awards offer prestigious international scholarships to emerging leaders for study and professional development in Australia and the region so they can return home and contribute to their nations' development.

They provide opportunities for people from developing countries, particularly those in the Indo-Pacific, to undertake undergraduate or postgraduate study at participating Australian universities and Technical and Further Education (TAFE) institutions.

australiaawards.gov.au



AUSTRALIA GLOBAL ALUMNI ENGAGEMENT STRATEGY 2016-2020

The Australia Global Alumni Engagement Strategy is promoting connections with and among alumni as they progress through their careers, providing opportunities for

professional development, shared research and strengthened business connections.

globalalumni.gov.au

NEW COLOMBO PLAN

The New Colombo Plan (NCP) is a signature foreign policy initiative, which aims to lift knowledge of the Indo-Pacific in Australia by supporting Australian undergraduates to live, study and undertake internships and other work-based learning in 40 locations across the region. Private sector partnerships are central to the program's success, assisting NCP scholars and mobility grant recipients to have meaningful work-based experiences in the Indo-Pacific.

In addition to sponsorship by businesses and program promotion by NCP Business Champions (32 CEOs and business leaders), over 300 private sector organisations, including research institutions and businesses, are registered on the NCP Internships and Mentorships Network, offering around 400 opportunities to NCP students.

dfat.gov.au/people-to-people/new-colombo-plan



AUSTRALIAN LEARNED ACADEMIES

Australia's Learned Academies play a critical role in promoting international engagement and providing opportunities for researchers and innovators to connect with counterparts globally:

- **Australian Council of Learned Academies—acola.org**

The Australian Council of Learned Academies (ACOLA) is a not-for-profit organisation that is the forum whereby Australia's Learned Academies come together to contribute to inform national policy and to develop innovative solutions to complex global problems and emerging national needs. Using its convening powers, ACOLA brings together Australia's greatest minds from across the Australia's Learned Academies, and wider, to advance discussions on complex issues through trusted, independent and interdisciplinary research-based advice to government. ACOLA works closely with a number of international academies and bodies on its domestic activities and on matters of global interest.

- **Academy of the Social Sciences in Australia—socialsciences.org.au**

The Academy of the Social Sciences in Australia (ASSA) is an independent, nongovernment organisation which comprises an elected Fellowship of almost 700 distinguished Australian social science researchers and professionals. The Academy provides advice to governments on issues of national importance, promotes understanding and awareness of the social sciences and coordinates international cooperation and collaboration in social science research. It is committed to equity, diversity and inclusion in the social sciences; particularly the involvement and recognition of Aboriginal and Torres Strait Islander people.

- **Australian Academy of Health and Medical Sciences—aahms.org**

The Australian Academy of Health and Medical Sciences is the impartial, authoritative, cross-sector voice of health and medical science in Australia. We are an independent, interdisciplinary body of Fellows – elected by their peers for their distinguished achievements and exceptional contributions to health and medical science in Australia. The Academy is uniquely positioned to convene cross-sector stakeholders from across Australia to address the most pressing health challenges facing society. We focus on the development of future generations of health and medical researchers, on providing independent advice to governments and others on issues relating to evidence based medical practice and medical researchers, and on providing a forum for discussion on progress in medical research with an emphasis on translation of research into practice.

- **Australian Academy of Humanities—humanities.org.au**

The Australian Academy of the Humanities is the peak national body championing the contribution humanities, arts and culture make to national life. It provides independent and authoritative advice to government, the education sector and industry to ensure ethical, historical and cultural perspectives inform discussions regarding Australia's future challenges and opportunities. It is an independent, not-for-profit organisation with a membership comprising Australia's leaders and experts in history and culture, languages, linguistics, cultural and creative industries, philosophy and ethics, and archaeology and heritage. The Academy also promotes international engagement and research collaboration, and invests in the next generation of humanities researchers through awards and prizes.

- **Australian Academy of Science—[science.org.au](https://www.science.org.au)**

The Australian Academy of Science is a not-for-profit organisation of individuals elected for their outstanding contributions to science and research. It provides independent, authoritative and influential scientific advice, promotes international scientific engagement, builds public awareness and understanding of science, and champions, celebrates and supports excellence in Australian science.

- **Australian Academy of Technology and Engineering—[atse.org.au](https://www.atse.org.au)**

The Australian Academy of Technology and Engineering operates as a Learned Academy of independent, non-political experts helping Australians understand and use technology to solve complex problems. Bringing together Australia's leading thinkers in applied science, technology and engineering the Academy provides impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity.

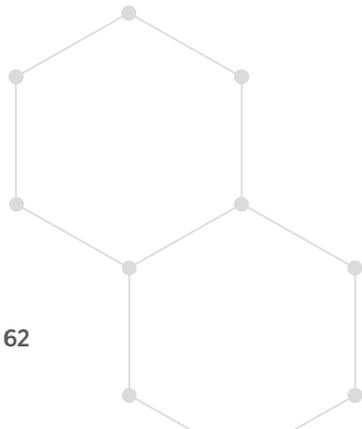


QUESTACON—THE NATIONAL SCIENCE AND TECHNOLOGY CENTRE

A division of the Department of Industry, Science, Energy and Resources, Questacon has developed a reputation for excellence and leadership in informal science engagement and education. Through knowledge partnerships and mentoring within the global science-centre community, Questacon has developed and delivered science engagement programs internationally for many years.

These programs build local capacity in the countries in which they are delivered, developing skills and sharing best practice initiatives with local educators, researchers and policy makers.

questacon.edu.au









industry.gov.au



[@ScienceGovAu](https://twitter.com/ScienceGovAu)



[@IndustryGovAu](https://twitter.com/IndustryGovAu)

