


South Australia

Global leader in the
industrial application of
quantum technology



Invest SA is a dedicated team of investment and business professionals within the Department for Trade and Investment, the only agency that can connect you with opportunities, industry networks and other government agencies in the critical technologies sector in South Australia.

Invest SA Critical Technologies team works to promote and connect a network of companies, universities, government agencies and industry bodies that contribute to quantum research and industrial application in South Australia.

invest.sa.gov.au/quantum

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Why South Australia

South Australia is the ideal location to commercialise opportunities in the industrial application of quantum technology. With a proven history of effective collaboration, you can partner with world-leading research institutions, industry and government to develop quantum-enabled technology and solve global problems.

Over the last decade, South Australia has strategically built world-class interconnected ecosystems around artificial intelligence (AI), data analytics, space, defence, health and energy and minerals industries, making Adelaide an ideal platform for quantum technology implementation for national and global companies. South Australia's data economy provides an ideal infrastructure for companies to thrive in med-tech, artificial intelligence, and machine learning.

Researchers are drawn to South Australia to access the specialised technical facilities based in Adelaide, and quantum solutions possible in leading industries like defence, space, health and mining. Working within this ecosystem enables development, testing and improvement of capabilities in quantum technologies.

The state is home to one of the world's leading AI, machine learning, computer vision and deep learning capabilities – the Australian Institute for Machine Learning (AIML). AIML, ranked in the top six in the world for computer vision, is Australia's largest AI capability with more than 160 researchers and engineers. Alongside AIML at The University of Adelaide is the Institute for Photonics and Advanced Sensing (IPAS) and Quantum Materials, chaired by Professor Glenn Solomon.

Adelaide's size and the proximity of our innovation precincts and educational facilities provides a nimble environment enabling collaboration and the ability to turn pilots into products and attract investment.

South Australia is committed to the industrial application of quantum and has established the Quantum and Data Hub SA and the Quantum and Data Activation Program SA to bring South Australian-based companies, universities, government agencies and industry bodies

together to kick start projects and collaboration and navigate federal programs.

Your quantum-ready workforce is here. South Australia ranks higher than the top performing OECD country for citation impact across nearly all quantum-relevant STEM research fields and we have a proven track record assisting global companies to rapidly scale their workforce.

With Australia's highest staff retention rates and an attractive and affordable lifestyle, our capital city, Adelaide, is consistently recognised as one of the world's most liveable cities. Our state prides itself on being the nation's 'Knowledge State'. With three world-class universities in the state, South Australia is the only Australian state where all universities appear on one or more of the major international ranking systems.

South Australia is ranked number one globally for annual renewable energy.

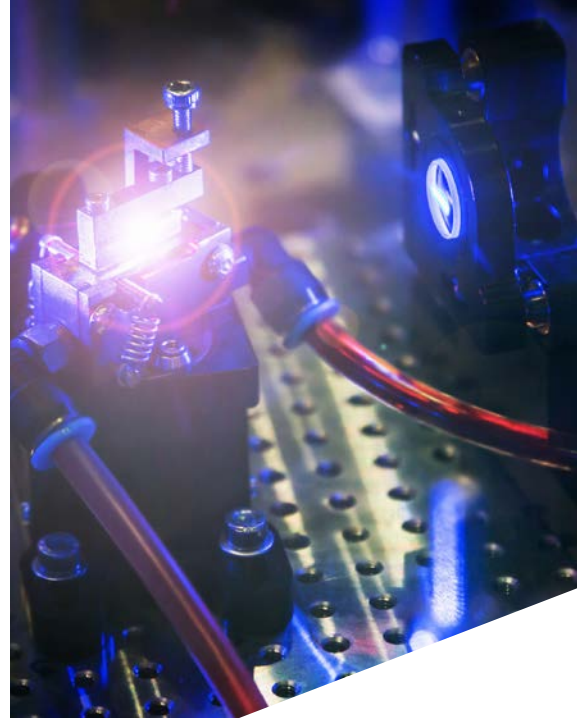
Our state offers a range of cost advantages that no other state in Australia can match, with a highly competitive environment and ease of doing business that supports and improves your bottom line.

With strengths across AI and data analytics-driven hi-tech innovation, defence, space, health and energy and minerals, South Australia is the perfect location for your company to develop quantum technologies ready for global industrial application.

"The first real commercial efforts in quantum computing in the world started here in Adelaide, when QxBranch penned an agreement to develop applications for Lockheed Martin."

Shaun Wilson, CEO, Shoal Group

Quantum research partners – sensing, photonics and materials



Australian Institute for Machine Learning

The Australian Institute for Machine Learning (AIML) is the largest machine learning group in Australia with 160+ people, and is working with companies including Lockheed Martin, BAE Systems, Roche, GSK and BHP Billiton. AIML is a key anchor tenant of Lot Fourteen, Australia's leading hi-tech innovation precinct.

AIML ranks in the top six worldwide in computer vision (csrankings.com) and is the top site in Australasia for AI research generally, with world-class expertise in the methods that support this; AI, computer vision and deep learning.

The institute is led by Professor Simon Lucey, who spent 10 years with Carnegie Mellon University's Robotics Institute and was the Principal Scientist at Argo AI - a USD\$1 billion start-up company that builds self-driving cars.

Lockheed Martin and Amazon Web Services have chosen South Australia for AI and have embedded their AI teams in AIML.

Centre for Augmented Reasoning

AIML's Centre for Augmented Reasoning leads the research and development of new augmented systems and improves machine learning technology across a range of applications.

AIML is part of The University of Adelaide.

Institute of Photonics and Advanced Sensing

The University of Adelaide's Institute of Photonics and Advanced Sensing (IPAS) is a world-class research institute that brings together experimental physicists, chemists, material scientists, biologists, experimentally driven theoretical scientists and medical researchers to create disruptive new sensing and measurement technologies.

In collaboration with the Faculty of ECMS (Schools of Chemical and Electronic Engineering) and the Faculty of Sciences (School of Physical Sciences), IPAS has partnered with global semiconductor design and manufacturing company Silanna Group and Defence Science and Technology Group to install AUD\$25 million of quantum materials manufacturing labs at the University of Adelaide.

These facilities create a unique ecosystem to grow new semiconductor materials at the quantum scale, design new solid-state devices and train a future quantum workforce for Australia.

Quantum Materials, the University of Adelaide

Ranked number five globally in quantum materials*, The University of Adelaide's Quantum Materials strategy focuses on cutting-edge fundamental research and delivering new quantum-enabled technologies.

The University of Adelaide's Chair of Quantum Materials, Professor Glenn Solomon is an esteemed scientist whose research combines quantum optics techniques and semiconductor crystal growth and processing. He is one of few scientists in the world who has fabricated nanostructures of quantum dots and performed quantum optics experiments on devices made from them.

"We are now on the cusp of a second quantum technology revolution, with the hope and expectation that research in quantum materials will deliver revolutionary technologies for next generation communications, navigation, computing, cybersecurity and biomedicine."

Professor Glenn Solomon, Chair of Quantum Materials, the University of Adelaide.

*Source: The University of Adelaide: 2022 Institute of Photonics and Advanced Sensing Annual Report).

Quantum-ready industry applications

From South Australia your company can explore and apply quantum technologies for global customers.



Defence

- advanced materials
- cryptography
- logistics
- precision navigation and timing
- secure communication
- sensing



Space

- climate change modelling
- exploration
- satellite optimisation
- sensing
- space logistics
- weather modelling



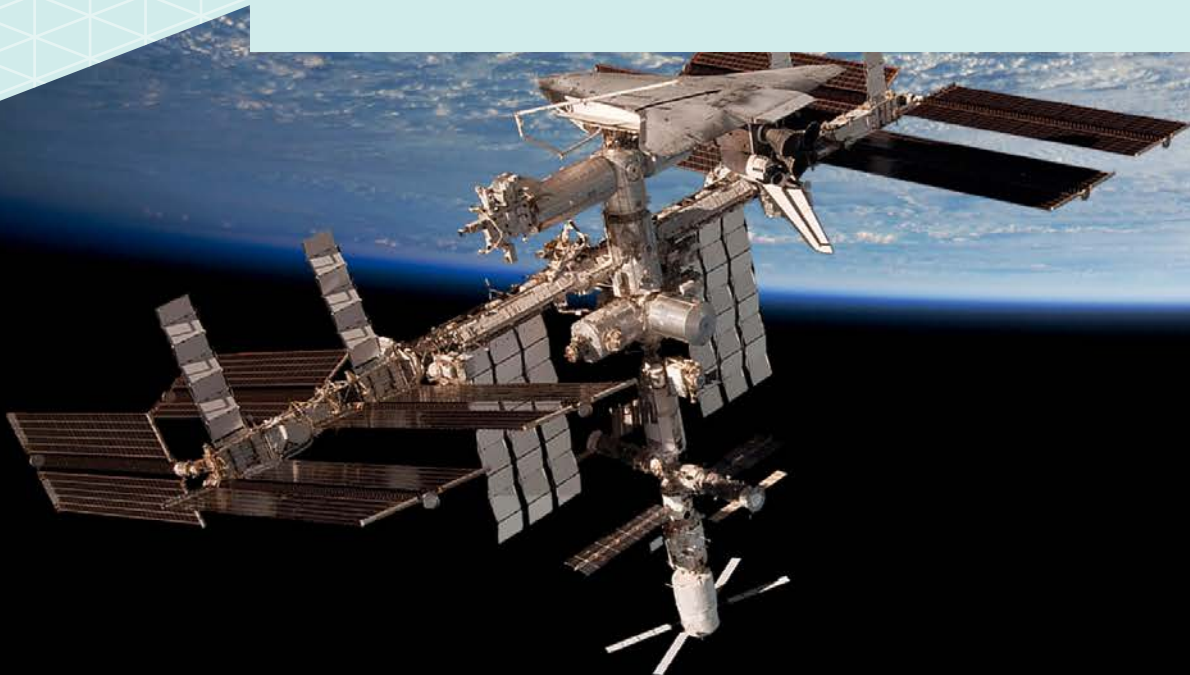
Health

- disease detection
- drug discovery and development
- genomic and transcriptomics
- homomorphic encryption
- MRI pulse optimisation
- planning and logistics
- research acceleration



Energy and minerals

- climate change modelling
- minerals exploration
- grid management and design
- planning and logistics
- storage



Quantum-ready industry – Defence

South Australia is the defence state. Renowned for innovation, world-class research and development, and a highly skilled workforce, South Australia holds a significant proportion of Australia's total in-country defence materiel spend.

Our global supply chain, access to prime contractors, strategic intelligence, test and evaluation facilities, and reconnaissance capabilities, combined with world-leading capabilities in artificial intelligence (AI), data analytics and cyber security makes South Australia the defence state in Australia.

This pioneering know-how is attracting global defence investment that supports emerging quantum technologies in the areas of:

- encrypted communications
- information, electronic and cyber warfare; and
- autonomous systems for land, sea, air, and space.

- expanding the Osborne Naval Shipyard by 2030 to design and build the infrastructure for the Submarine Construction Yard. A further 4,000 to 5,500 direct jobs are expected to be created when the program peaks in 20 to 30 years, in what will become the world's most advanced naval construction facilities
- developing an AUD\$160 million purpose-built facility, adjacent to RAAF Base Edinburgh, to allow for the heavy maintenance and modification of the P-8A Poseidon maritime surveillance aircraft as well as RAAF E-7A Wedgetail airborne early warning and control aircraft
- significantly upgrading the Woomera Test Range, along with upgrades to the town and airfield
- providing AUD\$9.9 billion over 10 years to enhance Australia's offensive and defensive cyber and intelligence capabilities³; and
- funding of AUD\$3.4 billion over the next decade, to establish the Advanced Strategic Capabilities Accelerator⁴. This investment will transform Australia's defence innovation ecosystem, leveraging Australia's expertise in science and technology to urgently deliver advanced technologies for Australia's national security.

Our state is home to numerous defence programs including:

- Arafura Class Offshore Patrol Vessels
- Collins-class submarines
- Hobart Class Air Warfare Destroyers
- Hunter Class Frigates
- Jindalee Operational Radar Network
- P-8A Poseidon Maritime Patrol Aircraft
- Triton Unmanned Aircraft System.

South Australia's defence presence is being strengthened through increased investment in stronger defence and security initiatives including²:

- establishing an Office for AUKUS in Adelaide to support delivery of the SSN-AUKUS Nuclear-powered Submarine Program

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.

Headed by the Chief Defence Scientist, DST has an annual budget of approximately AUD\$468 million and employs 2,100 staff - predominantly scientists, engineers, IT specialists and technicians with its largest presence in Edinburgh, South Australia.

² Defence State Sector Strategy 2030 (released January 2023), Defence SA, Government of South Australia

³ Ethical Artificial Intelligence in the Australian Signals Directorate (January 2023), Australian Signals Directorate, Australian Government

⁴ Budget 2023-24: Budget strategy and outlook Budget Paper No.1 (p29, May 2023), Australian Government Budget Financial Statements

Quantum-ready industry – Space

South Australia is the space state. With over 100 space organisations in Adelaide, South Australia’s dynamic domestic space ecosystem includes notable private investors, companies, start-ups and research institutions that are developing space technologies and attracting global attention and investment.

South Australia is home to:

Australian Space Agency

Putting South Australia at the centre of the national space industry is the Australian Space Agency which aims to increase the space sector to AUD\$12 billion and create up to 20,000 additional jobs by 2030.

SmartSat Cooperative Research Centre

The AUD\$245 million SmartSat Cooperative Research Centre, also headquartered in Adelaide, is Australia’s leading space research project. It brings together Australian Government, state government and industry partners from around Australia and the world with a focus on advanced satellite systems, communication technologies and next generation earth observation data services.

Plants for Space

Plants for Space (P4S) is an international research consortium building novel solutions for long term space habitation and on Earth sustainability. A new research centre, led by the University of Adelaide, will focus international expertise on finding ways to provide the next generation of space explorers with nutritious foods, and the on-demand supply of materials and medicine.

Space Precinct

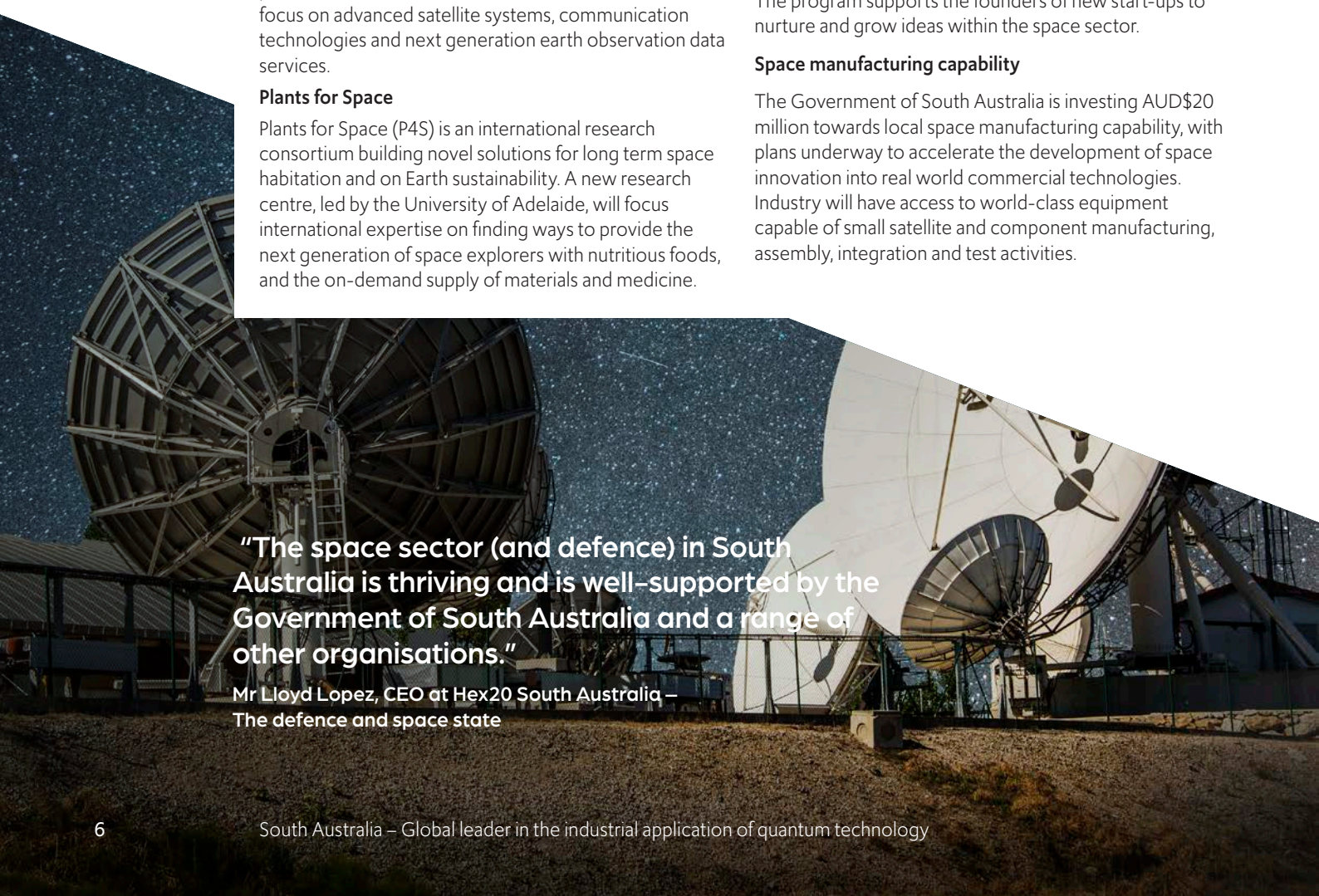
South Australia has a long and established heritage in ground operations relative to space with several organisations operating from Adelaide’s Technology Park, and Nova Systems operating a common-user Space Precinct on a 21-hectare site near Peterborough to track Low Earth Orbit (LEO) and Medium Earth Orbit (MEO) small satellite missions.

South Australian Space Industry Centre

The South Australian Space Industry Centre (SASIC) initiated the Space Incubator Program, Venture Catalyst Space, which is delivered through the University of South Australia’s Innovation and Collaboration Centre. The program supports the founders of new start-ups to nurture and grow ideas within the space sector.

Space manufacturing capability

The Government of South Australia is investing AUD\$20 million towards local space manufacturing capability, with plans underway to accelerate the development of space innovation into real world commercial technologies. Industry will have access to world-class equipment capable of small satellite and component manufacturing, assembly, integration and test activities.



“The space sector (and defence) in South Australia is thriving and is well-supported by the Government of South Australia and a range of other organisations.”

Mr Lloyd Lopez, CEO at Hex20 South Australia –
The defence and space state



Quantum-ready industry – Health

South Australia's health industry is quantum ready. Our collaborative ecosystem brings together hi-tech hospitals and innovation precincts, unique data sets and data infrastructure, with leading AI and data analytics capabilities to provide an ideal location for digital and precision health innovation.

Adelaide BioMed City

Adelaide BioMed City, an AUD\$3.8 billion health and innovation translation district connects local, national and international clinical research, innovation, education, academia and care within the central business district for a true bench-to-bedside experience. Adelaide BioMed City a focus on translation to advance patient outcomes globally.

Unique data

South Australia has a unique longitudinal clinical dataset consisting of a centralised electronic medical record with a single identifier for each patient across a universal healthcare system for 1.7 million people. This is matched by genomic and biobank resources, offering great potential linkages and historical insight for data-driven research and innovation.

Australia's most experienced end-to-end clinical trial supply chain

As the home to Australia's most experienced end-to-end clinical trial supply chain, South Australia's regulatory framework provides the fastest pathway to First-In-Human (FIH) clinical trial conduct for submission to global regulatory agencies including the US Food and Drug Administration (FDA), the UK Medicines & Healthcare products Regulatory Agency (MHRA), European Medicines Agency (EMA) and Japan's Prescription Drug Marketing Act of 1987 (PDMA).

Using a combination of high-performance computing, hybrid cloud, Australia's best longitudinal data and AI, South Australia is the perfect place to accelerate research to explore and exploit quantum-enabled:

- MRI pulse sequence optimisation
- drug discovery and development
- homomorphic encryption
- research acceleration
- disease detection
- genomic and transcriptomics; and
- logistics planning including ambulance routing, patient prioritisation and shift scheduling.

Quantum-ready industry – Minerals and Energy

South Australia is using its world-class energy and mining reserves to more than double its exports from AUD\$5.3 billion to AUD\$13 billion within the next decade. We are proud to be the nation's clean energy capital with a global reputation for leadership in renewable energy generation and storage at scale.

South Australia boasts an abundance of natural assets – including significant renewable energy zones for wind and solar, mineral deposits of copper, gold, iron ore, graphite, gas and petroleum products – meaning that global demand for resources can be serviced and our technical expertise is already high.

Our mining sector is supported by a strong equipment, technology and services industry that co-exists within hi-tech hubs and research centres, alongside future-focused industries like defence and space providing a collaborative ecosystem to open doors and inspire new ways of thinking.

Research and innovation

Tonsley Innovation District

The Tonsley Innovation District is home to key mining and energy organisations including CORE Innovations satellite office, Onshore Petroleum Centre of Excellence, the South Australian Drill Core Reference Library, Australian Hydrogen Centre, SIMEC Energy Australia, ZEN Energy and CMW Geosciences.

Arkani Ngura Innovation and Technology Centre

The South Australian Government and BHP (formerly OZ Minerals) partnered to establish the Arkani Ngura Innovation and Technology Centre – a unique sustainable, independently operating, not-for-profit, open-access, globally significant underground innovation and technology centre, supporting the development and commercialisation of innovations and technology in the mining, space and other related sectors. Located next to BHP's Prominent Hill mine, it will be the 'go-to' place in Australia to trial and demonstrate emerging innovations and technologies – including quantum - in an underground setting .

Remote automation

In 2020, Byrnescut and BHP (formerly OZ Minerals) successfully implemented an automation upgrade for Sandvik development drill at BHP's Prominent Hill mine. Leading contract miner Byrnescut Australia became the first underground operator in the world to successfully use a new automation and tele-remote package for Sandvik development drills. The two-boom rig, can be monitored and controlled from the surface and features a sophisticated boom-collision-avoidance system. This has resulted in BHP working with Byrnescut and Sandvik to roll out Sandvik's AutoMine® platform at Prominent Hill, with the system installed in the company's Adelaide office allowing an operator to remotely control a Sandvik LHD underground, over 600 km away, as if they were directly onsite.

South Australia continues to be recognised as a mineral and energy world leader for public policy and for stimulating the development and use of innovative exploration technologies and data analysis techniques.

Access to open data

Datasets from the minerals and energy sector include gas storage, mineral, petroleum and geothermal tenements, South Australia's major mines/quarries and mineral projects and the South Australia Resources Information Gateway are available through the Government of South Australia's Open Data Portal, Data.SA.

Quantum industry partners

Government



Global defence and space leaders



South Australian quantum companies

ARCHER

Archer Materials develops quantum computing qubit processors, including their world-first 12CQ technology and lab-on-a-chip biosensors. Their innovative materials include carbon-based qubits for quantum computing and graphene for enhanced biosensors.



QuantX Labs (formerly Cryoclock) is a world-leader in high-performance clock technologies delivering ultra-stable timing and ultra-pure frequency signals, primarily focused in the defence and space sectors. Their cryogenic Sapphire Clock loses just one second for every 40 million years of operation and is thousands of times more precise than any other technology now available.

rigetti

Foundational South Australian quantum application company, QxBranch was acquired by and merged with Rigetti Computing.

Rigetti Computing builds and deploys integrated quantum computing systems leveraging superconducting qubit technology. Through their Quantum Cloud Services (QCS) platform, Rigetti Computing's machines can be integrated into any public, private or hybrid cloud. Their technology enables organisations to augment existing computational workflows with quantum processors.



Silanna Semiconductor's world-leading power integrated circuits enable customers to develop products that consume less energy while delivering improved performance.

Silanna UV is revolutionising hygiene management with advanced ultraviolet (UV) LED technologies that disinfect air, water and surfaces across a wide variety of applications and industries.

SHOAL™

Shoal Group is one of Australia's fastest growing tech companies. They specialise in defence and space technologies and are currently working to develop and launch quantum encrypted sensors and communications equipment on satellites.

QxBranch, acquired by Rigetti, was spun out of Shoal Group in 2014.

Quantum and Data Hub SA

Quantum and Data Hub SA works to promote and connect a network of companies, universities, government agencies and industry bodies that contribute to quantum research and industrial application in South Australia.

Research



Australian quantum companies



Government



Industry



South Australia's quantum-ready hi-tech ecosystem

- AUD\$96 million Institute of Photonics and Advanced Sensing (IPAS) founded.

• IPAS generates AUD\$1.5 million in quantum materials projects.

- Adelaide-based Shoal Group, Tauri Group and Lockheed Martin signed first research agreement in Australia to access a quantum computer.

- Australia's first quantum computing company, QxBranh, founded in Adelaide. Later that year they open their first OS research facility in Washington D.C.

- QxBranh became first Australian company to win Innovate UK Quantum Technologies Innovation Fund challenge with UBS.

• ARC Centre for Gravitational Waves opened in Adelaide.

- QxBranh became first Australian quantum computing company to win Microsoft and IBM contracts to build software for their quantum computers. Engineering team was based in Adelaide.

- QxBranh acquired by Rigetti. Rigetti set up its Australian HQ in Adelaide.
- Brisbane-based Sillanna opened picoFAB facility in Adelaide. Facility is one of the first in Australia to use a molecular beam epitaxy (MBE) semiconductor manufacturing tool. They manufactured antenna switches for the Mars Rover.
- World's most advanced and precise atomic clock, Sapphire, was built in Adelaide by Cryoclock (now QuantX Labs).

- OzGrav team in Adelaide observed the biggest black hole merger ever detected.
- Seven Sisters Consortium launched in Adelaide. Led by Fleet, BHP (formerly OzMinerals), Q-CTRL and the University of Adelaide, the consortium will develop and deploy quantum sensing and computing equipment to support the NASA Artemis mission.
- Defence Science and Technology Group launched (STaR) Shots program with quantum sensing and metrology based in Adelaide.

- Adelaide-headquartered Archer Materials granted US patent for a quantum computing chip.
- AIML and D-Wave used quantum annealing machine to design smaller memory boards for satellites.
- Adelaide-based QuantX Labs (formerly Cryoclock) chosen by BAE Systems to manufacture atomic clocks for AUD\$1.2 billion AIR2025 JORN Phase 6 defence upgrade program.
- AUD\$1.2 billion Next Generation Technologies Fund, announced February.
- AUD\$2.2 billion National Research Infrastructure, announced June.
- Joint Statement of Australia and the United States of America on Cooperation in Quantum Science and Technology, announced November.

2012
2013
2014

2016
2017
2018
2019

2020

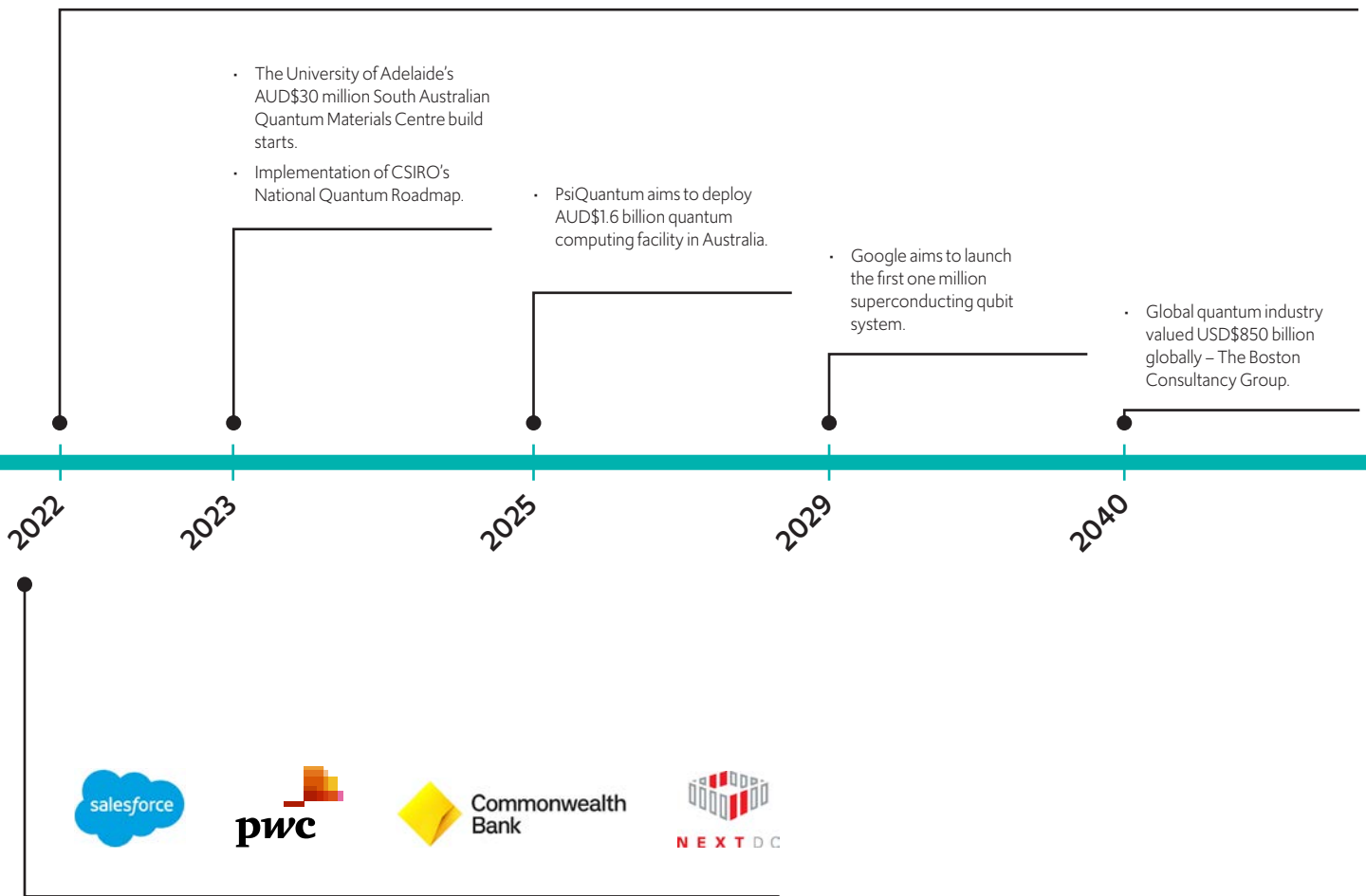
2021



MIT ADELAIDE
LIVING LAB



- The University of Adelaide Defence Trailblazer for Concept to Sovereign Capability (CSC) Project exploring quantum for defence was one of eight national projects selected for the AUD\$242.7 million Trailblazer University Program.
- Australia's first Forum on the Industrial Application of Quantum held in Adelaide by DTI and the Office of the Chief Scientist, with over 144 attendees from the US, UK and Australia.
- South Australia signed MoU with UK to collaborate on critical technologies such as quantum.
- Quantum and Data Hub SA formed as a vehicle for collaboration, trade and investment with industry, research and government – 167 individual members from Australia, UK and the US and growing.
- Develop Quantum Commercialisation Challenges to solve global problems through the South Australian Frontier Technology Centres in partnership with the Office of the Chief Scientist.
- Use the Chief Scientist South Australia's EXCITE platform to leverage funding from the AUD\$2.2 billion National Research Infrastructure fund to develop upskilling programs around quantum and critical technologies.
- Australian Army Research Centre's Army Quantum Technology Challenge 2022, held in Adelaide, August.
- Microsoft hosted Quantum Week in Adelaide, September.
- Second Forum on the Industrial Application of Quantum held in Adelaide, November.
- UK Research and Innovation delegation to South Australia.
- Post-Doctoral Centre for Quantum to launched, December.



Global technology companies in Adelaide for innovation

These leading technology companies continue to build around South Australia's connected technology ecosystem driving global businesses well into the future.

accenture

"We are incredibly proud of the success of our Adelaide capability and our contribution to the growth of Australia's sovereign capabilities. Adelaide is a highly attractive destination for companies and first-class talent looking to deliver technological and scientific excellence and we are privileged to be a part of this momentum.

Peter Burns,
CEO Accenture Australia and New Zealand



"Amazon Web Services recognise that South Australia has a rich community of both innovation and entrepreneurship, and we're excited to continue to support our customers and partners in South Australia out of our office in the innovation district of Lot Fourteen in Adelaide."

Rianne van Veldhuizen,
Managing Director, Amazon Web Services ANZ

Deloitte.

"We have chosen Adelaide as the home of our first Australian Centre for Innovation and Technology because we have enormous confidence in the South Australian economy and the exceptional talent market that exists in the region."

Hendri Mentz,
Adelaide Office Managing Partner



"Nokia is delighted to establish our National 5G Industrial Incubation Lab in South Australia, an important step forward to harnessing the power of 5G for all Australian industries."

Andrew Cope,
Nokia Managing Director of Australia and New Zealand



"Adelaide's vision to become a centre for innovation and technology aligns with our focus to accelerate the digital agenda and sustainability ambitions of Australian businesses."

Jane Livesey,
CEO, Australia and New Zealand



"Having maintained a presence in South Australia for over 30 years, it has been wonderful to see the significant development of the local ICT industry over the last few years. Adelaide is fast becoming a hub for technology innovation and we're excited to continue our commitment to the state."

Mark Cuggy,
State Manager, South Australia

MIT ADELAIDE LIVING LAB

"We identified Adelaide early on as the prime location for a Living Lab in Australia and the Indo-Pacific region due to its leadership in data analytics and machine learning."

Professor Alex 'Sandy' Pentland,
Massachusetts Institute of Technology



"The focus on Cyber Security and AI within Adelaide and Lot Fourteen, and the depth of the local talent pool in these topics are big attractors for us. AI and data are key to the next generation of digital personalisation, and the local focus on Augmented Reasoning, in particular, is very exciting when we think about how we can use AI technology to better empower our staff to serve our customers."

Brendan Hopper,
CIO for Technology, Commonwealth Bank of Australia



All your partners here

The world's largest technology companies have established AI-focused innovation hubs in Adelaide. These organisations are aligning their strategy for the next decade on the ability to deliver AI-focused projects and have selected Adelaide as the best location for cyber, AI and big data capabilities

Global technology companies in Adelaide for innovation

- **Accenture** announced a 2000-person practice in Adelaide driving innovation in AI, data analytics and cyber security for the Asia Pacific region.
- **Amazon Web Services** established their Australian applied sciences team in Adelaide to work with AIML to develop new AI applications.
- **Boeing Defence Australia** has grown to over 300 employees in South Australia, supporting the P-8A Poseidon RAAF Base Edinburgh as well as advanced research, development and innovation capabilities in their Capability Hub.
- **Cognizant** are expanding operations into South Australia with the opening of a global delivery centre in South Australia, creating 1,600 digital roles.
- **Defence Science and Technology Group** develop military capabilities and critical technologies, such as artificial intelligence and quantum technologies for the land, maritime, air, space, and information and cyber warfare domains.
- **Deloitte** announced a 1,500-person Centre for Innovation and Technology in Adelaide.
- **Lockheed Martin**, already established in South Australia, opened a national office in Adelaide in 2022 to accommodate over 90 staff to build on a local network encompassing approximately 1,200 staff nationwide, of which 520 are based in South Australia.
- **Microsoft** established their Azure Space team in Adelaide.
- **MIT Adelaide Living Lab**, the world's leading data analytics capability, are partnering with the State to build our hi-tech capabilities.
- to build our hi-tech capabilities in health.
- **MTX Group** announced their first technology innovation hub in the APAC region for 500 staff will be based in Adelaide.
- **Nokia** announced their Australian 5G industrial incubator will establish in Adelaide.
- **PwC** established 2,300 staff with an innovation focus in Adelaide.
- **Rigetti**, a world leading quantum computing company who pioneered hybrid quantum-classical computing systems, merged with Adelaide-headquartered QxBranch in 2019.
- **Telstra Health's** international growth functions are led from Adelaide.

Quantum-ready workforce

Partnering with you to upskill South Australia's hi-tech capabilities to quantum

South Australia has demonstrated the capacity to respond to the skilled knowledge-based workforce needs of at-scale companies and changing industries.

Our state prides itself on being the nation's 'Knowledge State'. With three world-class universities in the state, South Australia is the only Australian state where all universities appear on one or more of the major international ranking systems.

Research commissioned by the Chief Scientist for South Australia found that South Australia ranks higher than the top performing OECD country for citation impact* in the following STEM research fields: physical sciences, macromolecular and materials chemistry, mathematical sciences, ICT, chemical engineering, interdisciplinary engineering, materials engineering, artificial intelligence and image processing, computational theory and mathematics and applied mathematics.

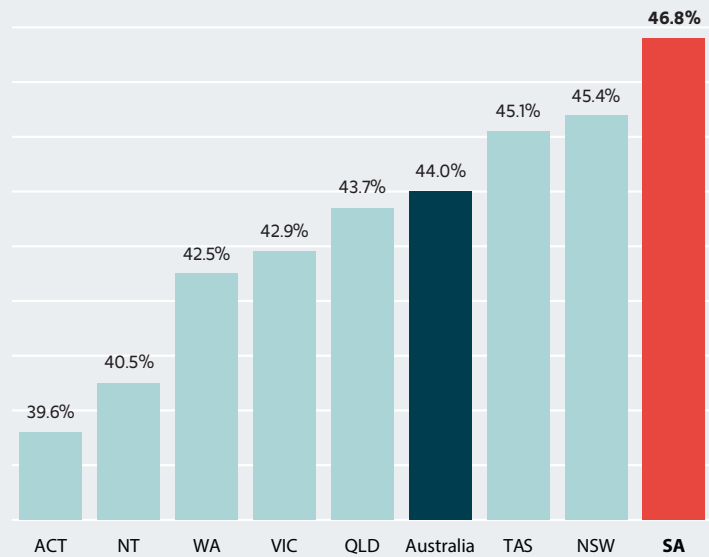
South Australia's performance is equivalent to the top three performing OECD countries for citation impact in the following STEM research fields: chemical sciences, engineering, nanotechnology, statistics, numeric and computational mathematics, and manufacturing engineering.

Led by the Australian Institute of Machine Learning at the University of Adelaide, the Introduction to Quantum Computing course is upskilling computer scientists to the requirements of quantum computing.

Our state is committed to growing the quantum workforce. The South Australian Government, educational institutions and industry can partner with you to co-design programs to upskill our significant hi-tech capabilities to supply your company with a quantum-ready talent pipeline.

Australia's highest staff retention rate

% of employed persons with their current employer for 5+ years



Source: Australian Bureau of Statistics - Job Mobility [Table 1.2 - Labour mobility, retrenchments and duration of employment by state and territory, February 2023]

Adelaide CBD office rental space is:

- 67% lower than Sydney
- 35% lower than Brisbane
- 33% lower than Melbourne
- 30% lower than Perth

Source: CBRE Research - Australian Office Q2 2023

*Citation impact reflects the extent to which researchers across the world cite research publications with South Australian authors, relative to the citation rate for all research publications in the world in the requisite field or subfield. This measure is used as a measure of research excellence by national and international bodies including the OECD. Data report: Office of the Chief Scientist for SA (September 2021). Data source: Clarivate In Cites Database.

Innovation districts

Our sectors co-exist in hi-tech hubs and research centres, forging collaborative ecosystems that open doors and inspire new ways of thinking.

Defence Super District

34 kms from CBD

Key national defence research, manufacturing and sustainment hub housing the RAAF Base Edinburgh, Defence Science and Technology Group and major defence companies.

Osborne Naval Precinct

26km from CBD

Australia's largest naval shipbuilding hub incorporating a critical mass of world-class warship design and construction skills. Significant upgrades are slated to make it the most technologically advanced naval shipyard in the world.

Technology Park

17km from CBD

Hub for systems development and integration, information communications technology, advanced manufacturing and electronics, and home to over 100 small to medium enterprises, multinationals and start-ups.

Adelaide BioMed City

Adelaide CBD

AUD\$3.8 billion and medical innovation district with leading edge anchor institutes and companies that cluster and connect with start-ups, business incubators and accelerators.

Lot Fourteen Innovation District

Adelaide CBD

Australia's first ideas and innovation neighbourhood and home to the Australian Space Agency, SmartSat CRC, Defence and Space Landing Pad, Stone & Chalk Start-up Hub, Adelaide, MIT Adelaide Living Lab, Australian Institute for Machine Learning and the Australian Cyber Collaboration Centre.

Tonsley Innovation District

12km from CBD

Home to high-value manufacturing industries including defence, health, medical devices and assistive technologies, clean tech and renewable energy, software and simulation, mining and energy services.



South Australia leading the renewable energy transition

World-leading average of over 70% of electricity from renewables

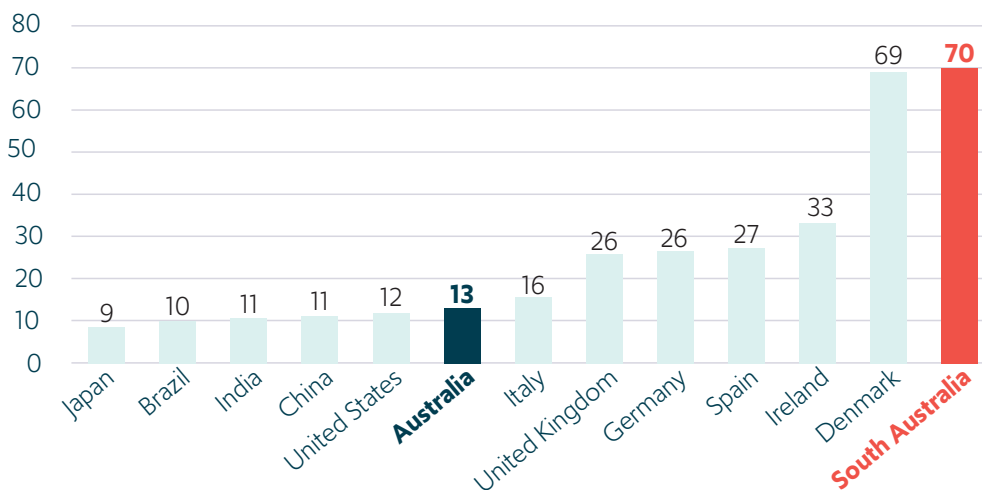
On track to achieve target of 100% net renewables by 2030

On track to achieve target of 500% net renewables and be a national and international exporter of clean energy by 2050

South Australia ranked **number one globally** for annual wind and solar renewable energy

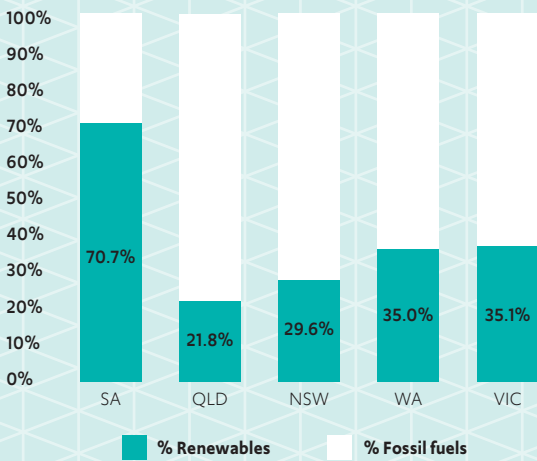


%VRE in annual electricity generation 2022



Source: www.iea.org

**Contribution to electricity generation by state
(1 January to 31 December 2022)**



Source: OpenNEM (2021-22)

“South Australia is better equipped to respond to the challenges and opportunities of climate change than any other Australian state and nearly all of the world’s sub-national jurisdictions.”

Professor Ross Garnaut, September 2020



Let's talk

With strengths across AI and data analytics driven hi-tech innovation, space, defence, health and life sciences and energy and minerals, South Australia is the perfect location for your company to develop quantum technologies for global industrial application.

Contact us to explore how quantum technology can benefit you.

Level 8, 250 Victoria Square
Adelaide, South Australia 5000

Angus Russell

**Business Development Manager,
Critical Technologies**

Invest SA
Department for Trade and Investment

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