

Training and Skills Commission

Aerospace Workforce Insights

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Workforce Insights has been developed to inform government skills planning and to support employers and individuals to make informed workforce and skill development decisions.

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About Workforce Insights

At the beginning of 2019, the South Australian government established eight Industry Skills Councils (ISCs) to strengthen industry's voice in skills and workforce development, and to ensure that funding for skills and training is directly aligned to industry priorities.

Workforce Insights brings together advice from ISCs and their networks, labour market and training data and industry research to explore the latest trends in skills and workforce development. In developing these reports, the Training and Skills Commission (the Commission) has adopted an industry centred approach, so you can be sure the insights have been endorsed by industry leaders.

Workforce Insights has been developed to inform government skills planning and to support employers and individuals to make informed workforce and skill development decisions. Workforce Insights will continue to evolve and be updated as additional research is undertaken and new information becomes available. The information in this Workforce Insights has been provided by ISC members who represent the aerospace, defence and space sectors in particular.

Thank you to all those who supported the development of these industry-led, sector-driven documents. Individually and collectively your contribution to the skilling and development of South Australia's current and future workforce has been immense.

For further information, tasc.sa.gov.au/workforce-insights

Aerospace

The aerospace industry can be broken down into three sub-sectors:

- Aircraft and aircraft parts manufacturing
- · Civilian aircraft and component repair and maintenance
- Military aircraft repair and maintenance

The aviation industry includes aircraft manufacturing and repair services, as well as a range of professional, scientific, and technical services for the aviation, defence and space industries. In 2019, the aircraft manufacturing and repair services sector employed around 4000 people in South Australia.

Until recently, most of the historical growth in the space sector could be attributed to government requirements and traditional space services such as satellite television, broadband, and communications, with smaller contributions accruing from New Space - the high-tech equipment manufacturing and start-up business sector.

Space is now attracting the attention of market-leading venture capital firms and start-up funds, signifying a fundamental shift in how space is funded. With the global space economy's present upward growth trend now being led by the private sector, increased visibility of the potential space market will unlock new clients for South Australian Small and Medium Enterprises (SMEs) and start-ups and activate investment in these companies' unique capabilities.¹

Key findings

- Data analytics, Artificial Intelligence (AI) and machine learning skills will be needed to support the growing space industry in South Australia.
- There is a growing gap between the skills of experienced Licensed Aircraft Maintenance Engineers (LAMEs) and those of newly qualified entrants.
- Two thirds of aviation employers had experienced skills shortages in the previous 12 months.

- There is an emerging demand for skills in:
 - networks air and ground integration
 - the use of drone technology for professional imagery capture and exploitation
 - low observable air frames
 - drone technology and digital transformation of aviation in response to COVID-19
 - engineering and advanced technologies for space roles and defence aerospace
 - cybersecurity.





Industry outlook

Aerospace

IBSA Manufacturing's Aerospace Industry Skills Forecast (2018-2022) suggests that meeting the aerospace industry's skills requirements will be challenging, as there is a need to provide maintenance services to both ageing and stateof-the-art aircraft, with different technologies required for each.

The global aviation industry is also expected to grow during the coming decade, with pilots, maintenance staff, air traffic controllers, operations managers and trainers expected to be in high demand.²

The Commission predicts there will be some 160 job openings between 2018 and 2023 for Aircraft Maintenance Engineers (AMEs), with approximately half arising due to increased demand.³ The Commission's projections also estimate around 180 job openings for air transport professionals, including pilots and air traffic controllers, between 2018 and 2023. This modelling was undertaken prior to COVID-19, and therefore it does not account for recent changes to the aviation industry, which has experienced devastating impacts due to the grounding of aircraft fleets worldwide.

The slump in airline activities from COVID-19 poses a serious safety risk as it impacts aircrew recency and currency requirements. Pilots need to maintain their skills and knowledge during the downturn. There have been extensive job losses in the industry and recovery will be slow and dependent on an effective vaccination program. The vaccination program is underway and once the aviation industry returns to normal, it will face the challenge of addressing skills shortages. Maintenance of skills remains a high priority for the industry as some current licence holders require ongoing professional training.⁴

Space sector

The Australian Space Agency has set an ambitious goal to triple the size of Australia's domestic space industry to \$12 billion by 2030. South Australia is consolidating and refining its activities to best support the state's space industry, in collaboration with the Australian Space Agency.

The establishment of the Australian Space Agency in Adelaide places South Australia at the centre of what is expected to be a growing industry. New technologies - such as high performance computing, additive manufacturing, miniaturisation and AI - are creating new opportunities in the space industry.⁵ Students learning data analytics, AI and machine learning skills will be needed to support the industry - which all points to the need for students to complete Science, Technology, Engineering and Mathematics (STEM) subjects at school.

The capabilities of South Australia's space sector span small satellite design and manufacture, including components and sensors, launch

^{2 |} The Australian Aviation Associations' Forum, A new partnership for the aviation industry (2016), 1

^{3 |} Training and Skills Commission modelling

^{4 |} Australian Industry Standards, Aviation Industry Outlook, 2021

^{5 |} CSIRO Futures, Space: A Roadmap for unlocking future growth (2018), 5

operations, mission control and ground stations, connectivity and bespoke applications, and data analysis and processing.

Within the broader space sector - as defined by the Australian Space Agency - there are numerous and diverse space focused companies located in South Australia, comprising:

- large multinationals
- SMEs
- an ever-growing number of start-ups that are establishing themselves in South Australia to capitalise on the growing network of space professionals and industry initiatives
- more than 10 research organisations
- industry associations
- consultancies
- world class educational institutions with a diverse array of departments engaged in the space sector.

South Australia has received significant investment for Australia's space industry, putting the state at the centre of the nation's space endeavours. The Australian Space Agency, the SmartSat Cooperative Research Centre, and the South Australian Space Industry Centre (SASIC) together form the centrepiece of a vibrant, entrepreneurial ecosystem contributing to South Australia's thriving space economy. The Government of South Australia is also building a world class entrepreneurial community and supporting infrastructure at Lot Fourteen in Adelaide's central business district, supporting innovators to collaborate and grow their ideas. Ultimately, this community will deliver the entire space value chain and enable the design, launch, and mission control of New Space capabilities.

Supporting this activity, SASIC provides a whole of state government focal point for local industry and international companies and organisations. With a joint staff derived from Defence SA, the Department for Trade and Investment, and the Department for Innovation and Skills, SASIC coordinates and implements industry and workforce development through initiatives, events, scholarships, and an incubator program.

Until recently, the majority of historical growth in space could be attributed to government requirements, and traditional space services such as satellite television, broadband and communications, with smaller contributions accruing from New Space - the hi-tech equipment manufacturing and start-up business sectors. Space is now attracting the attention of market leading venture capital firms and start-up funds, signifying a fundamental shift in how space is funded. With the global space economy's present upward growth trend now being led by the private sector, increased visibility of the potential space market will unlock new clients for South Australian SMEs and start-ups and activate investment in these companies' unique capabilities.





SASIC, a cross-government group working with key stakeholders to grow the state's space economy, complements numerous innovative initiatives, including a space incubator program and scholarship, internship and work experience programs. Three South Australian major innovation precincts facilitate dynamic collaboration and new ideas, and these will be shaped to include the space sector. The precincts include:

- Technology Park Adelaide an established and thriving business hub with a broad portfolio of technology, defence and training businesses that are growing larger every year.⁶
- Tonsley which brings together leadingedge research and education institutions, businesses and start-ups, business incubators and accelerators, plus government and the wider community to connect and collaborate.⁷
- Lot Fourteen the creation of an innovation precinct at Lot Fourteen is the most recent initiative.⁸ Lot Fourteen is backed by the South Australian and Australian governments and is a key focus of the \$551 million Adelaide City Deal, providing a springboard for innovation and bringing together the state's leading abilities in the space, defence, hi-tech and creative industries.

Lot Fourteen supports a strong, emerging ecosystem with a blend of start-up and early stage companies, academia, and space orientated government and defence agencies. It is home to the Australian Space Agency, the SmartSat CRC, key space organisations, and the future Mission Control and Space Discovery Centres. The precinct enables unprecedented opportunities for collaboration and innovation across the space and defence industries.⁹

- 6 | https://techpark.sa.gov.au/
- 7 | https://tonsley.com.au/
- 8 | https://lotfourteen.com.au/
- 9 | South Australia Growth State: Space Sector Strategy, South Australian Space Industry Centre, November 2020

Impact of COVID-19 on aviation industry

COVID-19 has caused substantial disruption to the aviation industry, with significant reductions in domestic and international airline operations and services. The recovery path will take time, with the international border restrictions still in place, however the recovery in domestic airline activities will be faster.

The long term sustainability and growth of the aviation industry is important to the Australian economy and the Federal Government has provided some support to enable the industry to maintain operations during this difficult period.

One area of growth for the industry during the COVID-19 pandemic is drone technology. In response, the Aviation Industry Reference Committee has proposed to develop a new qualification to address skills and knowledge requirements for operators across multiple industries, including agriculture, public safety and transport. Digital transformation has resulted in important technological advances in air traffic control operations, which will help industry to safely integrate drone operations with more conventional flight operations. Control towers are rapidly becoming more digitalised to enhance service delivery and improve safety outcomes. Air traffic controllers will need to be upskilled in the operation of these new technologies.

The COVID-19 pandemic has also increased the demand for automation, including autonomous vehicles, in the aviation sector. The use of drones and unmanned aerial taxis for delivering products such as food or medical supplies will be more prevalent in the future.¹⁰





Impact of COVID-19 on the space sector

Despite projections of positive growth, the COVID-19 pandemic has significantly impacted many large global aerospace manufacturers, resulting in revenue loss, prime companies reducing their exposure through redundancies and curtailed production, and greater fragility in the global supply chain. In the short term, traditional space activities - particularly launch to geosynchronous orbit and manufacturing - is likely to suffer more than New Space. New Space is heavily reliant on venture capital, which is now focused on the survival and success of existing investments, rather than new investment opportunities. Those that are funded are faced with longer runways, reduced cashflow, and delayed opportunities. This may mean that New Space companies that had viable business offerings prior to COVID-19 are unable to survive the market downturn.

These global impacts are likely to have a disproportionate impact on the growing Australian space ecosystem and its emerging new entrants, with most of the industry in this area being early stage. Nevertheless, their relatively small size may translate to an agility that provides greater recovery options and the opportunity to re-focus and adapt, the very essence of anti-fragility.¹¹

^{11 | &#}x27;Anti-fragility' as coined by Nicholas Taleb is an idealised condition whereby a system not only withstands shocks but returns stronger. Antifragile: Things That Gain from Disorder

Priority qualifications

Course code	Qualification	Industry	
AVI30319	Certificate III in Aviation (Ground Operations and Service)	Aviation	
AVI30119	Certificate III in Aviation (Aerodrome Operations)	Aviation	
AVI20119	Certificate III in Aviation (Flight Operations Cargo Services)	Aviation	
MEM30119	Certificate III in Engineering - Production Systems - System Engineer	Aerospace	
UEE51020	Diploma of Instrumentation and Control Engineering - Instrument Landing System (ILS) Engineers	Aerospace	
MEM30505	Certificate III in Engineering - Technical (Release 2)	Aerospace	
UEE51120	Diploma of Engineering Technology - Refrigeration and Air Conditioning	Aerospace	
MEA50318	*Diploma of Aviation Maintenance Management (Avionics)	Aerospace	
MEA60418	*Advanced Diploma of Aeronautical Engineering	Aerospace	
MEA60518	*Advanced Diploma of Avionic Engineering	Aerospace	
22460VIC	*Diploma of Applied Technologies	Aerospace	
*Pending MEA Aeroskills Training Package review - alignment of Vocational Education and			



Training (VET) qualifications with aerospace licensing regulations.



Air and space transport

IBSA Manufacturing's Aerospace Industry Skills Forecast (2018-2022) finds there is a growing gap between the skills of experienced LAMEs and those of newly qualified entrants. This gap is further compounded by an ageing workforce and very few new entrants to the industry.¹²

In a survey conducted by Australian Industry Standards to inform its Aviation Industry Skills Forecast, two thirds of aviation employers had experienced skills shortages in the previous 12 months.¹³ The occupations reported as being in shortage included:

- flight instructors and flight examiners for both aeroplanes and helicopters
- aircraft maintenance engineers
- aerodrome personnel: reporting officer, work safety officer, WHS co-ordinators/managers.

Aviation technology

In the field of aircraft manufacturing and engineering, Australia is considered a leader in the provision of through-life services, particularly applied to military aircraft. In addition, there are several engineering training areas in which Australia possesses significant, internationally recognised expertise that holds sizeable potential for international growth. These include advanced fibre composites, integrated componentry, advanced avionics diagnostics systems, prefabricated materials and offsite manufacture, steel framed multi-storey buildings, and unmanned aerial systems. The need to include and readily update new technologies in the aeroskills training package is of strategic importance to the aerospace industry.¹⁴

The effective integration of drones into traditional airspace and flight operations is also a challenge. There is a pilot program to assess unmanned traffic management systems and identify options for integration of unmanned systems with conventional airspace users while maintaining air safety and security.

A new air traffic management system, known as OneSky, will replace the current system and is expected to roll out by 2023 to harmonise civil and military air operation.¹⁵

^{12 |} IBSA Manufacturing, Aerospace Industry Reference Committee: Skills Forecast and Proposed Schedule of Work 2018-2022 (2018), 24

^{13 |} Australian Industry Standards, Aviation Industry Reference Committee: Skills Forecast (2018), 22

^{14 |} IBSA Manufacturing, Aerospace Industry Reference Committee: Skills Forecast and Proposed Schedule of Work 2018-2022 (2018), 34

^{15 |} Australian Industry Standards, Aviation Industry Outlook, 2021

Critical occupations

Critical occupations for industry growth during the next five years include:

Occupation	Industry	Туре
Aircraft Baggage Handler	Air and Space Transport	Occupation
Airline Ground Crew	Air and Space Transport	Occupation
Airports Works Safety Officers	Air and Space Transport	Occupation
Airworthiness and Safety Inspector	Air and Space Transport	Occupation
Licensed Aircraft Maintenance Engineer	Air and Space Transport	Occupation
Flight Examiner	Air and Space Transport	Occupation
Flight Instructor	Air and Space Transport	Occupation
Load controller	Air and Space Transport	Occupation
Project Manager	Air and Space Transport	Occupation
System Engineer	Space	Occupation
Aviation Avionics Engineer	Air and Space Transport	Occupation
Project Scheduler (Engineer)	Space	Occupation
Aviation Supervisor and Manager	Air and Space Transport	Occupation
Software Engineer	Space and Defence	Occupation
Drone operator	Aviation and Aerospace	Occupation
Data analysis	Air and Space Transport	Skill
Leadership	Air and Space Transport	Skill
Science, Technology, Engineering and Mathematics (STEM)	Aviation, Space and Defence	Skill
Hi-tech (e.g. robotics, additive manufacturing, miniaturisation, Artificial Intelligence (AI), machine learning, Augmented Reality/Virtual Reality (AR/VR), Industry 4.0, Internet of Things (IoT), quantum computing etc)	Space and Defence	Skill
Big data/data analytics	Space and Defence	Skill
Design mindset/thinking, critical/systems thinking/solving problems	Aerospace	Skill
Communication/collaboration, including virtual collaboration/social intelligence	Aerospace	Skill
Entrepreneurialism	Space	Skill





Aerospace

A survey conducted by IBSA Manufacturing to inform its Aerospace Industry Skills Forecast (2018-2022)¹⁶ found the aviation industry was developing skills for new job roles such as:

- licensing and regulation licensed aircraft maintenance engineers, B1 licence holders, airworthiness and safety inspectors
- managerial and leadership roles, including aviation, people and project management and supervisory roles
- positions related to new technologies such as avionics, digital systems integration, new aircraft types and composite structures
- engineering positions covering cross-trade mechanical skills, fibre optics and technical research.

In a survey conducted by the Australian Government's Department of Defence (Defence), new skills were required for:

- networks air and ground integration
- the use of drone technology for professional imagery capture and exploitation
- low observable air frames
- cybersecurity.

The Australian Industry Standards' Aviation Industry Skills Forecast found the following to be in demand, prior to COVID-19:

- aircraft baggage handlers
- airline ground crew
- load controllers
- airports works safety officers.

Space

"South Australia's space industry is vibrant, but the civil sector is dominated by start-up companies with the challenges this brings in achieving scale-up and critical mass."

"The current education offerings are all university-based courses. To continue to develop the South Australian space workforce, the state will need to expand the education and training offerings to include the vocational sector. Building a highly skilled and diverse workforce is essential for innovation, business creation and growth."¹⁷

^{16 |} IBSA Manufacturing, Aerospace Industry Reference Committee: Skills Forecast and Proposed Schedule of Work 2018-2022 (2018), 27

^{17 |} South Australia Growth State: Space Sector Strategy, South Australian Space Industry Centre, November 2020





Future skills needs

Critical skills or occupations for next five to 10 years include:

Occupation	Industry	Туре
Science and technology, particularly for automation and digital transformation of air traffic control operations	Defence, Aerospace and Aviation	Skill
Artificial Intelligence (AI) and machine learning	Space	Skill
Advanced technologies (remote operations aircraft and unmanned aerial vehicles)	Space and Defence	Skill
Science, Technology, Engineering and Mathematics (STEM)	Space	Skill
Licensed Aircraft Maintenance Engineer (LAME)	Aviation	Occupation

Aviation

Replacement demand for occupations with a relatively older workforce is high. An example of this is AMEs, where there are training implications with less experienced workers training and supervising apprentices and the training lag time not always factored in to avoid future skills shortages. With increased competition from emerging markets and an ageing workforce, the industry needs to consider how to attract new entrants to the industry. The aviation industry has well-defined career pathways for pilots but does not offer similar channels for AMEs. The lack of career pathways has seen experienced, trained people start their careers in aviation and move to other industries. More recently, there has been a shift of people joining the industry as unlicensed aircraft maintenance engineers, with new entrants joining from other sectors, such as mining. One solution proposed by industry may be for larger airlines (commercial aviation) to investigate partnerships with the general aviation sector to create career pathways for people.¹⁸

^{18 |} IBSA Manufacturing, Aerospace Industry Reference Committee: Skills Forecast and Proposed Schedule of Work 2018-2022 (2018),27

Defence aerospace industrial capabilities

¹⁹In November 2020, the Australian Government released its Sovereign Industrial Capability Priority Implementation Plan: <u>Aerospace platform</u> <u>deeper maintenance and structural integrity</u>. The plan outlines key priorities for the maintenance and sustainment of Australia's aerospace platforms, defined as three critical industrial capabilities, which Defence seeks to gain access to or control over. These include:

- execution of maintenance, repair, overhaul, and upgrade activities
- aerospace platform structural integrity
- the exploitation of data and emerging technologies to optimise aerospace platform deeper maintenance.

In a bid to ensure that Australia retains the identified critical industrial capabilities, Defence aims to build the following capabilities during the next decade:

- access to design, engineering, and maintenance-related intellectual property technical data and operational performance condition data supporting aerospace platform and component deeper maintenance
- national multipurpose and cross-platform infrastructure development for the conduct of aerospace platform deeper maintenance and structural integrity management
- innovative, flexible contracting that promotes and enables contracts across multiple platforms and encourages the realisation of economies of scale for management facilities established within Australia
- sustainment focus through the smart buyer approach in the early stages of the capability life cycle to ensure critical elements are established under commercial, cooperative, and foreign military sales programs
- cooperation with partner nations to establish shared management capability
- enhanced collaboration between educational institutions and industry to enhance skills transfer that develops areas of critical need
- enhanced collaboration between the Australian Government's Defence Science and Technology Group and academia to support relevant research and development.



^{19 |} Australian Government, Department of Defence, Sovereign Industrial Capability Priority Implementation Plan: Aerospace platform deeper maintenance and structural integrity, November 2020



To implement the plan, Defence has delegated specific responsibilities to stakeholders across the industry, including the Capability Acquisition and Sustainment Group, the Royal Australian Air Force (RAAF) and the Defence Science and Technology Group.

These actions will begin with a Capability Acquisition and Sustainment Group review of intellectual property guidelines underpinning deeper maintenance management requirements across the capability life cycle - commencing in mid-2021. The program will also include a late 2021 RAAF review of deeper maintenance requirements for Boeing 737 derivative aerospace platforms, E-7 Wedgetail and P-8A Poseidon.

The RAAF review is designed to determine whether there are advantages to co-locating deeper maintenance of the platforms, including whether there are related advantages for Australian industry.²⁰

^{20 |} Defence Connect website, <u>https://www.defenceconnect.com.au/key-enablers/7182-defence-publishes</u> sovereign-capability-roadmap-for-aerospace-industry, November 2020

Skilled migration

*Roles currently on the Designated Area Migration Agreement (DAMA) skilled migration occupations list relevant to the space industry include:

Occupation	Industry
Design, engineering, science and transport professionals	Space
Electrical engineer	Space
Electronics engineer	Space
Engineering manager	Space
Engineering technologist	Space
ICT professionals	Space

*Current as at November 2020

ANZSCO Code	Occupation	Industry
271311	Solicitor/lawyer (space focused)	Space
261313	Software engineer	Space



Plans and major projects Project Moon to Mars - closed cycle agriculture



Project	Status	Industry
Moon to Mars - closed cycle agriculture	In progress	Space
Capitalise on new space	In progress	Space
Launch to accessible lower Earth orbits	In progress	Space
Machine learning and Artificial Intelligence (AI) to exploit space derived data	In progress	Space
Nova Systems establishment of a ground station-as-a-service network	In progress	Space
\$2 million Earth observation satellite	In progress	Space
Solid-state ion propulsion thruster	In progress	Space
Build upon the increased connectivity of Internet of Things (IoT) devices	In progress	Space
Defence Innovation Hub funding grants	In progress	Defence and Space
International Space Investment (ISI) initiative	In progress	Defence and Space
Unmanned Aerial Systems	In progress	Aerospace
Gulfstream G550	In progress	Aerospace





Moon to Mars - closed cycle agriculture

Leveraging South Australia's long history of academic and industrial innovation in arid environment agriculture/horticulture, plant sciences and greenhouse technology to become the Australian centre of expertise in space-based farming and food production.

Capitalise on new space

Support the development of many small, connected satellites with disruptive approaches to design and technology.

Launch to accessible lower Earth orbits

In a first for Australia, Southern Launch is developing a dedicated commercial rocket launch site at Whaler's Way on the Eyre Peninsula for polar launch of small satellites into low Earth orbit. Southern Launch has also established a sub-orbital test range at Koonibba near Ceduna to facilitate the development and testing of new rocket and space technologies.

Machine learning and Artificial Intelligence (AI) to exploit space derived data

The Australian Institute for Machine Learning's Department for Machine Learning for Space will use a \$20 million investment to develop next generation space technologies to boost the productivity of the state's economy.

Nova Systems establishment of a ground station-as-a-service network

Located at Peterborough, the ground station delivers connectivity to subscribed satellite operators and also offers a ground station service for use as a research and development test bed for organisations needing to test concepts and ideas in a real environment.

\$2 million Earth observation satellite

A \$2 million Earth observation satellite for the Australian Government's Commonwealth Scientific and Industrial Research Organisation (CSIRO) - the CSIRO-at-1 nanosatellite - will be delivered by South Australian small satellite manufacturer, Inovor Technologies. The project will be funded by a grant from the CSIRO's Science and Industry Endowment Fund.

Solid-state ion propulsion thruster

Developed by South Australian company, Neumann Space, the solid-state ion propulsion thruster has been tested on the International Space Station for satellite propulsion and manoeuvring.

Build upon the increased connectivity of Internet of Things (IoT) devices

Fleet Space has partnered with SA Water to produce an Internet of Things (IoT) application of its services that map critical water infrastructure in Adelaide's metropolitan area.

Fleet Space was the only space orientated company to receive a share of the \$2.9 million grant funding awarded by the Government of South Australia's Accelerated Discovery Initiative.

Defence Innovation Hub funding grants

Funding grants are provided to improve space domain awareness capabilities for the defence industry. South Australian companies granted funding include Silentium Defence, Inovor Technologies and DEWC Systems.

International Space Investment (ISI) initiative

The International Space Investment (ISI) initiative helps to unlock international space opportunities for Australia. Funding has been provided via the Australian Space Agency's ISI grants to:

- XTEK working on a lightweight carbon fibre launch structure
- A consortium (SITAEL, Neumann Space, Inovor Technologies and Nova Systems) developing a small satellite for thermal management, real time communications and on-board autonomous decision capabilities
- Silentium Defence and its partners for the development of a multi-sensor space observatory.

Unmanned Aerial Systems

 Ground control station for Trion and Sky Guardian unmanned aerial systems being introduced into service in early to mid-2020s as part of the Intelligence Surveillance Reconnaissance hub at the Edinburgh Defence precinct.

Gulfstream G550

 Four Gulfstream G550 aircraft to be based at RAAF Base Edinburgh, a \$2.46 billion program for sustainment of aircraft over its lifespan.
 First aircraft due to fly out from 2023.



Current workforce initiatives

Project	Purpose	Partners	Outcome
Centre for Sustainable Planetary and Space Resources	Bring together the University of Adelaide's collective exploration, mining, manufacturing and engineering research strengths.	University of Adelaide, industry and researchers	Address the challenges faced by long term planetary exploration, while ensuring the near- term application on Earth.
Southern Hemisphere Space Studies Program - annual	Provide \$50,000 in scholarship funding for South Australian residents.	International Space University and University of South Australia	Develop a skilled workforce for the space sector.
Space scholarship program	Provide up to \$100,000 in scholarship funding each year to assist South Australian entrepreneurs and innovators to study, intern or attend world-leading conferences	South Australian Space Industry Centre (SASIC)/ Government of South Australia	Awards successful applicants with funding of up to \$20,000 to assist in developing leadership skills, experience and knowledge in the space sector.
Space industry work experience program	Career education for school students	Managed through SASIC's Advanced Technology Program	Provides students from Years 10-12 with the opportunity to undertake short term placements at selected local space companies.
Hamilton Secondary College Space School	One of only two schools in South Australia with a designated facility and specialist curriculum to deliver space education	Hamilton Secondary College and Victorian Space Science Education Centre	Inspiring and shaping our future workforce.
Flinders University consortium	Dedicated to applied research on space politics and policy to understand and analyse space politics, space policy, and the importance of space assets.	Flinders University, industry and academia	Improved application of space politics and policy for defence, economic development, international relations and decision making.



Project	Purpose	Partners	Outcome
Venture catalyst space	The program includes a series of workshops, mentoring from expert advisors, and funding of up to \$10,000 per company - plus the opportunity to pitch for a sponsored tour to the United States or Europe to network with relevant space investors and companies.	Delivered through the University of South Australia's Innovation and Collaboration Centre	The program is designed as a precursor to the space accelerator program.
Expanding space workforce	Develop a comprehensive space education program that leads to a sizeable interdisciplinary space workforce with depth that supports the healthy exchange of professionals between industry and/or academia.	Department for Innovation and Skills, industry and academia	Industry can access the skills and workforce it needs.
Defence aerospace workforce skilling	Attract, educate and qualify new talent to the defence aerospace industry to provide stability in the future workforce pipeline, develop expert and specialist skills aligned to critical industrial capabilities, and align academia to areas of research and development to enhance critical industrial capabilities.	Department of Defence will facilitate relationships and join investments between industry, aerospace education and training providers, academia and Australian Defence Force technical trade training establishments	Build a collaborative approach to the attraction and training of new talent and ongoing professionalisation of existing workers in the aerospace sector.
Find Your Place campaign	The aim of the Find Your Place campaign is to build awareness of the rewarding, long term careers that are available in the Defence industry and the education and training pathways to get there.	Defence SA, Department for Innovation and Skills and Department for Education	The campaign aims to encourage businesses to invest in new apprentices and training staff to build an industry- ready workforce and prepare for the workforce demand of upcoming projects.

Project	Purpose	Partners	Outcome
Industry 4.0 higher apprenticeship*	Apprentices will develop advanced technical skills for defence manufacturing, graduating with a Diploma in Applied Technologies. Existing mechanical engineering trade units are combined with the study of robotic systems, cloud- based data and CAD tools.	Ai Group, Defence industry, Skills Lab	Combining VET and higher education to create 100 engineering technician apprenticeships over four years.
Defence Industry Leadership Program*	Professional development program that provides employees from a wide range of sectors in the Defence industry with personal and professional leadership skills.	Department for Innovation and Skills, Defence Teaming Centre and TAFE SA	Defence industry accelerates the expansion and potential of its workforce for the rapid growth of the defence sector over the coming decade.
Professional Certificate of Defence Industry Leadership	Defence industry specific leadership program that covers key areas such as self-leadership, ethics, networks, collaboration, dealing with complexity and managing change.	Defence Teaming Centre and University of Adelaide	Defence industry accelerates the expansion and potential of its workforce for the rapid growth of the defence sector over the coming decade.
Premier's Defence Industry Scholarship Program	40 STEM scholarships for high calibre students, delivered over three years	Government of South Australia, Ai Group and local Defence industry	Develop workplace skills of students in final year of a STEM degree or business degree (majoring in project management or logistics) for a defence career.
Employee attraction campaign (Make Your Move)	Attract skilled, qualified and experienced workers to South Australia - currently targeting Victoria.	Defence SA, Naval Shipbuilding College, Primes	Fill gaps in priority jobs, as identified by Naval Shipbuilding College workforce data

*Skilling South Australia project

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ISC priorities

ISC priority	Status	Responsibility	Industry
New Space (VET jobs definition and gap analysis)	In progress	Industry, Australian Space Agency and Government	Space
STEM (particularly engineering) skills for space	In progress	Industry and Government	Defence and Space
Advanced manufacturing (Industry 4.0)	In progress	Government and industry	Defence and Space
COVID-19 response and recovery	In progress	Industry	Aviation
Micro-credentials, skill sets and skill clusters	In progress	Industry and Government	Defence and Aerospace
Higher level apprenticeships (e.g. Digital Engineering Apprenticeships)	In progress	Industry, Government, Skills Lab	Space, Energy and Defence



Better Skills Better Work Better State

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