Australian Government
Australian Trade and Investment Commission

Australia's Space Industry

Overview

9 June 2022

Australia's space industry is rapidly growing, driven by new technologies, a growing demand for space enabled data, private investment and a significantly increased funding commitment to a variety of space programs, projects and organisations by the Australian Government. In total, close to $20 billion has been committed to space already since 2016.

With the Australian Space Agency and recently established Defence Space Command helping to coordinate Australian industry and open Australia to global space programs, there will be ever greater opportunities for international space companies to invest in – and work with – Australia's space sector.

The Australian Government's investment in space is guided by the Australian Civil Space Strategy and the Australian Defence Space Strategy. For Civil Space, seven civil space priorities have been selected to transform and grow Australia's space industry. These are:

- **Communications technologies and services**
- **Earth Observation (EO)**
- **Position, Navigation and Timing (PNT)**
- **Space Situational Awareness (SSA) and debris monitoring**
- **Leapfrog Research & Development**
- **Robotics and automation on Earth and in space**
- **Access to space**

Australia covers a sixth of the Earth's rotation, making us the ideal location to connect with space-based platforms, support launch services and track space objects.

Further, beyond its natural attributes, Australia possesses growing capabilities in advanced communication, quantum technology, rocket propulsion, space medicine and astronomy, to take its place in the global space sector.

Finally, the heritage of our traditional sectors such as mining in developing robotics, sensors and automation technologies, can be adapted for expanding the economic footprint of the space economy into orbit and eventually the moon.

The Australian Government is playing a leading role in helping to unlock this potential.

Establishing the Australian Space Agency, the Government set a goal to triple the size of the Australian space sector from an estimated AUD$4 billion in 2016 to A$12 billion and grow an additional 20,000 jobs by 2030.

To help facilitate this growth, the Government has committed over A$2 billion to the civil space sector since 2018. This includes:

- A$1.2 billion National Space Mission for Earth Observation,
- A$450m+ to develop world leading satellite infrastructure through Geoscience Australia,
- A$150 million to participate in NASA's Moon to Mars Artemis Program
- A$15 million for space infrastructure to help build the local ecosystem
- A portion of the $1.3 billion Modern Manufacturing Initiative, for which space is one of six priority areas

In addition to these civil investments, the Government has also committed A$17 billion for the development of Defence space capabilities as part of the 2020 Force Structure Plan. This investment and planning provide Australian companies with the support to both maintain and upgrade existing capabilities, as well develop new capabilities that can solve problems domestically and service global partners.

The role of space in the broader economy is also increasingly central. For instance, according to the Australian Space Agency's Earth Observation From Space Roadmap, the Australian EO from space sector directly contributed $283 million in value to the Australian economy and employed 1,570 people in 2020. The wider economic benefits attributable to EO data in Australia were estimated to be in the order of $2.5 billion in 2020.

Through this growth in demand and strategic investments by government, the sector has been attracting growing investment over the past five years. Since 2017, approximately AUD$900 million has been invested in Australian space organisations, approximately a third of which is in Venture and Angel funding. Moreover, space sector revenue as a whole reached AUD$5.7 billion in 2020 and the total number of space jobs had reached 15,234, up from an estimated 10,000 in 2017.

New investments in space capacity building

To help grow our capacity to develop space platforms for use across the public and private sectors, the Australian government is partnering with industry through mechanisms like the $1.3 billion Modern Manufacturing Initiative to develop a series of projects that will enable the growth of the Australian space sector. These include:

- **Australian Space Manufacturing Network (ASMN):** The Government has awarded $52 an under the Collaboration Stream of the $1.3 billion Modern Manufacturing Initiative (MMI) for a consortium led by Gilmour Space Technologies to create a manufacturing and test hub and an advanced manufacturing facility to produce launch vehicles and satellites. The ASMN is a $157 million project in total, that will also support the Bowen Orbital Spaceport in North Queensland, preparing its launch pad to fire rockets into orbit. Over the next five years, it's expected the project will support more than 850 new jobs, including 350 space manufacturers in highly skilled engineering and technical roles.

- **Australian Space Manufacturing Hub:** The Federal Government is contributing $20 million to a consortium led by Fleet Space Technologies' to develop an Australian Space Manufacturing Hub under the Collaboration Stream of the MMI. To be located at Australian Space Park at Adelaide Airport, the project will receive a furth $20 million from the SA Government and is valued at $66 million in total. The ASMH is expected to create 221 local jobs, as well as more than 1000 others indirectly.

- **Australian Satellite Manufacturing Hub:** The Government is investing $23.6 million in a $71.4 million the Australian Satellite Manufacturing Hub, jointly led by **Electro Optic Systems (EOS) and Nova Systems** under the MMI. The Hub will see manufacturing facilities built at the South Jerrabomberra Innovation Precinct outside Canberra and UTS Tech Lab at the Sydney Innovation and Technology Precinct based in Botany, NSW.

- **iLAuNCH Hub:** The Australian Government is contributing $50 million as part of its Trailblazer Universities initiative to support the development of the University of Southern Queensland led 'Innovative Launch, Automation, Novel Materials, Communications, and Hypersonics' Hub, aka, the iLAuNCH Hub.

Improving Access to Space

More than $65 million is being injected to fast-track Australia's access to space. There are 4 main elements of this package:

- Spaceport development: $32.3 million for the government to co-invest spaceports and launch sites across Australia.
- Support for spaceflights: the government will invest $32.5 million to procure and provide spaceflights to get Australian technology into space sooner. This includes $3.5 million for a national student space challenge.
- A framework for human spaceflight in Australia: this could make Australia a regional hub for commercial human spaceflight.
- Putting an Australian astronaut in space: the Australian Space Agency will negotiate with international agencies to send Australian astronauts into space. Its main priority will be identifying possible mission contributions to exploration that could support the exchange of Australian astronauts.

COMPETITIVE REGULATORY REFORMS

In March 2022 the Australian Government announced it will permanently remove fees for launch applications. This will let companies invest in the future with certainty and encourage more launches from Australia.

Robust testing and accreditation infrastructure

In addition to the support for manufacturing, the Australian Government has also invested in bolstering the testing and accreditation ecosystem in Australia, supporting all aspects of the development cycle for space projects in Australia. These include:

- **ANU Advanced Instrumentation and Technology Centre – AITC (ACT)**
  The AITC is home to the **National Space Testing Facility (NSTF),** which includes the **Wombat XL Space Simulation Facility** and is located at ANU's $30 million AITC in Mount Stromlo in the ACT. The AITC possesses several space testing capabilities, including:
    - Clean Room Facilities
    - Thermal and Vacuum Testing
    - Vibration and shock testing
    - EMC chamber

The NSTF also includes the space radiation testing capability of the Heavy Ion Accelerator Facility (HIAF). It hosts Australia's highest energy ion accelerator which can be used to simulate the radiation environment found in space:

- Beams of ions of nearly any element can be accelerated, with maximum energies dependent on the species (e.g., protons up 28 MeV, iron up to 200 MeV).
- Suitable for testing device robustness, single event effects in electronics, energy loss in shielding materials, and space radiobiology.
- Access to cutting-edge mechanical workshops and outstanding technical design capabilities for tailoring testing and experiments.

- **Australian Nuclear Science and Technology Organisation (ANSTO)**
  ANSTO is home to radiation testing facilities that are well-suited for testing small biological or pharmaceutical samples. In addition, ANSTO's facilities include materials testing for extreme environments, and advanced manufacturing capabilities. Modifications (eg new mounting devices, addition of beamlines and beam/source types) are required in order to enable standardised space payload hardness testing.
- **Australian Space Automation AI and Robotics Control Complex – SpAARC**
  SpAARC is a world-class facility in Australia that trains, tests and controls remote and autonomous operations in space and other harsh environments, and a world-recognised commercial facility for innovation, security and collaboration. SpAARC is a multi-user facility operated by Fugro Australia, providing accessible infrastructure for transposing current Australian robotic expertise into the space environment. The demonstration and test facility will support software simulation of space vehicles, space robotic systems, and planetary exploration systems, including orbital mechanics and simulated communication links with time delays.
- **Australian Space Data Analysis Facility - ASDAF (WA)**
  Opened on 26 May 2021, the ASDF was delivered by WA's Pawsey Super Computing Centre to provide SMEs and researchers with data analysis capability for agriculture, mining, emergency services and maritime surveillance using Earth Observation and Space Situational Awareness data. The ASDAF is now calling for Expressions of Interest (EOI) for relevant projects from SMEs and researchers. Successful projects will facilitate the growth of Australian industries through the access and utilisation of space related data, such as earth observation data, as well as leveraging training and knowledge building to ensure sustainable growth.
- **Space Tracking facilities upgrade (TAS)**
  in July 2021 a partnership was announced between the Tasmanian Government, the University of Tasmania (UTAS) and **HENSOLDT Australia** – to Tasmania in developing Space Domain Awareness (SDA) capabilities in the monitoring of satellites and space debris. The partnership will see the development of new facilities to allow for precision tracking of satellites and spacecraft for orbit and de-orbit tracking.
- **Mission Control/Australian Space Discovery Centre (Adelaide, SA)**
  A Mission Control Centre for small and medium enterprises (SMEs) and researchers to control small satellite missions. This will enable real-time testing and opportunities to improve satellite technology. Saber Astronautics, a company with space bases in Sydney and Boulder, Colorado, won the contract to deliver the project. It opened on 31 March 2021.
- **QUT Lunar Testbed**
  Queensland University of Technology (QUT) has received $1.2 million in new Australian Research Council (ARC) funding and a green light to build Australia's largest covered outdoor facility for testing equipment, robotics and materials processing techniques in realistic Moon, Mars and asteroid conditions. The 20 x 10 metre lunar testbed will be capable of simulating different planetary environments to support robotics, sensing and other research applied to space.

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