

## At a Glance: The NSW Space Ecosystem

### Overview

## Space

### Why Space?

#### Economic Value



The global space economy is projected to reach USD \$1.2 trillion (currently at \$800 billion) propelled by technological advancements, private investment, and its potential to address global challenges and benefiting Earth through the expansion of the space economy.

In Australia, the space industry is valued at over AUD \$6.8 billion.

#### Industry Subsectors

The space sector is categorised into three sub-sectors:



##### Upstream

Space flight  
Satellites  
Moon rovers  
Astronauts



##### Downstream

Connectivity  
Position Navigation and Timing  
Earth Observation  
Natural hazards  
Climate Monitoring  
Agriculture



##### Ground Infrastructure

Ground stations  
Telescopes  
Sensors

#### Industries Supported by Space

The space sector is far more expansive and influential than what meets the eye. From satellite communications to space agriculture, the space industry permeates our everyday lives, supports a variety of adjacent industries, and paves the way for innovative advancements.

**Climate change** Space-based Earth observation systems monitor global warming movement and supports efforts to mitigate climate change through data collection and analysis.

**Defence** Earth observation satellites are critical for intelligence gathering and surveillance.

**Agriculture and Food Production** Satellites are used for precision autonomous farming, crop monitoring, yield prediction, and resource management leading to more sustainable agriculture.

**Communications, GPS, and Navigation** Satellites enable global telecommunications, broadcasting, weather monitoring, navigation systems (GPS), and remote sensing applications, ensuring connectivity in even the most remote areas.

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## The NSW Space Ecosystem

NSW is home to the greatest concentration of space businesses in Australia.

### NSW Government

Space is a priority sector, supported by the NSW Government through five key initiatives:

1. **The National Space Industry Hub**, hosted by Cicada Innovations, offers physical space, resources, mentoring and connections for emerging space ventures and researchers in Australia.
2. **The NSW Node of the Smart Sat CRC** supports industry and research collaboration to solve industry problems through space related technologies.
3. **The NSW Space Research Network** enhances space industry capability through collaboration between the Government and universities to deliver space research.
4. **The Waratah Seed Space Qualification Mission** is Australia's first ride-share mission delivering space flight qualification opportunities to NSW startup and industry-led teams.
5. **IAC2025 Demonstrator Project** (confidential not yet announced) is funding for the development of a unique space capability to be showcased during IAC2025 linked to the theme Sustainable Space Resilient Earth.

### NSW Space Capabilities

NSW have businesses across most of the space capability segments, with strengths in high-tech instrumentation, ground station infrastructure, smart payloads development, space and intra-space communications, and commercialisation of space data.

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advanced Manufacturing               |                                                                                                                                                                              |
| Earth observation and data analytics |                                                                                           |
| High tech instrumentation            |                                                                                         |
| Robotics                             |                                                                                                                                                                               |
| Satellites and satellite systems     |      |

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|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Research and development    |  Australian Astronomical optics  AUSTRALIAN CENTRE FOR SPACE ENGINEERING RESEARCH  C U A V A<br>Training Centre for Cubesats UAVs and their Applications |
| Space medicine and biology  |  Built for the extreme                                                                                                                                                                                                                                                                                                       |
| Space Situational Awareness |                                                                                                                                                          |

### NSW R&D Organisations

NSW is Australia's hub for highly educated, skilled, and diverse talent. Three of Australia's top five highest ranked research universities are in NSW, with the University of Sydney and the University of New South Wales both ranked within the world's top 20 universities.

NSW has eight universities actively engaged in space-related programs.

| University | Macquarie University                                                                                                                                                                                                                    | University of New South Wales                                                                                                                                                                                                                                                                                                             | Western Sydney University                                                                                                                                                                                        |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Program    | Australian Astronomical Optics (AAO)                                                                                                                                                                                                    | Australian Centre for Space Engineering Research                                                                                                                                                                                                                                                                                          | International Centre for Neuromorphic Systems                                                                                                                                                                    |
| Focus      | Research Strengths in: <ul style="list-style-type: none"> <li>Developing innovative technology for use in astronomical instruments</li> <li>Developing software and data systems for processing, storage, and access of data</li> </ul> | Research strengths in: <ul style="list-style-type: none"> <li>Global Navigation Satellite Systems (GNSS) receiver design,</li> <li>Earth observation satellite systems,</li> <li>Cubesat development in radiation tolerant FPGA's,</li> <li>Novel satellite structures utilising rapid manufacture and GNSS remote observation</li> </ul> | <ul style="list-style-type: none"> <li>Design and build high-performance sensors and processors for autonomous use in challenging and remote environments.</li> <li>Spinning out 'Astrosite' company.</li> </ul> |

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#### NSW Key Infrastructure

Beyond Government Precincts, like Tech Central and Landing Pads, NSW houses key infrastructure supporting the growing space industry:

| UTS Tech Lab                                                                                                                                                                                                                                                                                                                                                                                                                     | Advanced Manufacturing Research Facility                                                                                                                                                                                                                           | Incubators, Accelerators, Start-Up Hubs, and Landing Pads                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>A multidisciplinary research facility that supports bespoke industry-led partnerships designed to drive innovation in engineering and IT. Home to:</p> <div>    </div> | <p>AMRF will offer specialist engineering talent to drive qualified manufacturing solutions with metal additive manufacturing, precision machining, high-value composites, metrology, robust materials, digitisation and automation, and computational design.</p> | <div>      </div> |