

International Space Investment India Projects



Webinar session
Tuesday 28 March 2023



Australian Government



Australian
Space Agency

Acknowledgement of Country

The Australian Space Agency acknowledges the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

We pay our respects to their Elders past, present and emerging.



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Our presenters



Aude Vignelles

CTO



Arvind Ramana

Agency Program Lead

Director, Space Technology Uplift,

Program Lead - ISI India



Dr Elyse Allender

Agency Project Lead

Space Technology Uplift,

Project Lead – ISI India



Steve Campbell

Assistant Manager

International & Government

Engagement,

India Engagement Lead

Invited presenters

Mark Arkell
Manager
Space Systems
team
Australian
Communications and
Media Authority

Tamara Bell
A/g Senior
Adviser, Defence
and Space
Austrade

Alistair Kay
Director
Office of the Space
Regulator
Australian Space
Agency

Saurabh Sapre
Technical Assessor
DEC

Pete Hunter
Assistant
Manager
Portfolio Program
Delivery team
Grants Delivery and
Business Services

Agenda

- Program and Guidelines walkthrough
 - Background
 - Eligibility
 - Joint applications
 - Assessment criteria
 - Key documents walkthrough
 - Outcomes
 - Next steps
- Overview of Australian launch and return authorisations (OSR team)
- Overview of ACMA & spectrum licencing (ACMA)
- Overview of Export Control process (DEC)
- Intro to AusTrade services (AusTrade)
- Intro to Business Grants Hub team
- Q&A







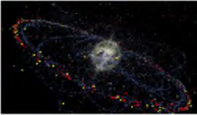
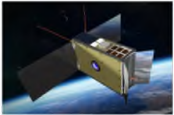


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Background: International Space Investment initiative

- **International Space Investment (ISI) initiative** was announced in 2018 as part of the *Australian Technology and Science Growth Plan – growing the Australian space industry*
- Advances Australian Civil Space priority areas, builds international partnerships, creates opportunities for Australian businesses and researchers to access international supply chains, creates jobs in Australia and supports industry



ISI Expand Capability
\$11.0m Program

Human Aerospace  Spacesuits for Preserving Human Health and Mobility \$844,236	Akin  AI Crew for space: helping with complex systems tests \$1,531,200	Raytracer  Underwater Virtual Reality Training Simulations for Astronauts \$200,000	Saber  OSSO: The Open Source Space Operations infrastructure \$788,792	Silentium  South Australian Multi-Sensor Space Observatory for SSA/STM \$1,460,541
Skykraft  Design and qualification of micro-satellite constellation launch systems \$878,193	Industrial Sciences Group  Decision Support System for Collision Avoidance of Space Objects \$217,821	University of Melbourne  The SpIRIT (Space Industry Responsive Intelligent Thermal) CubeSat mission \$3,955,223	University of Canberra  VertiSense-Mitigation of Sensorimotor Effects Of Simulated Weightlessness \$432,494	UNSW  Advanced GNSS Receiver for CubeSats, Rockets and Remote Sensing \$691,500

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ISI India – Background and Announcement of Opening

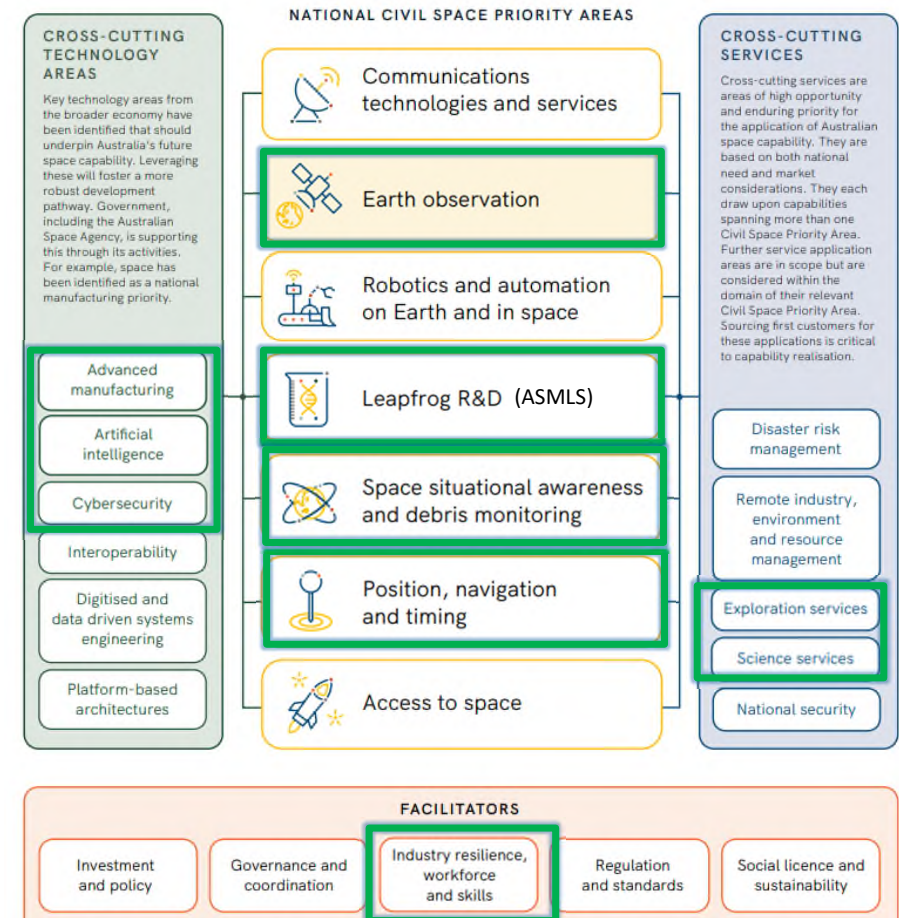


17. **Recognising the importance of space**, the Prime Ministers agreed to **strengthening cooperation** in multilateral fora including the United Nations for the safe, **sustainable and secure use of space**. The Prime Ministers recalled the participation of Australia as a Partner Country in the 7th Bengaluru Space Expo and expressed their belief that **more India-Australia collaboration in the field of space should be fostered, including scientific research, space applications and production and launch of satellites**. The Prime Ministers also announced the first round of Australia’s India-focused International Space Investment grants program, designed to foster closer **bilateral collaboration on mutually beneficial space research and development projects**. The Prime Ministers underlined Australia’s ongoing support of India’s Gaganyaan Space Program.

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Program focus : Mutual Priority Areas (MPAs)

- Mutual Priority Areas were identified by the Australian Space Agency through national and international consultation sessions
- If a project does not fall within these listed areas, applicants should demonstrate how their project is aligned with, or will advance capability within one of these MPAs



MPAs and critical technologies – Alignment examples



MPAs

- Earth Observation
- Applied Space Medicine & Life Sciences
- Space Situational Awareness
- Position, Navigation and Timing
- Advanced Manufacturing
- Artificial intelligence
- Cyber Security
- Science and exploration services
- Industry resilience, workforce & skills development

Critical technologies

- Sensing, timing and navigation
- AI, computing and communications
- Biotechnology, gene technology and vaccines
- Quantum
- Energy and environment
- Transportation, robotics and space
- Advanced materials and manufacturing

Program Objectives



- **Unlock international space opportunities** for the Australian space sector to work and deliver on joint space projects with the rapidly growing Indian space sector
- **Extend the capability and capacity of the Australian space sector** and support job creation by collaboration with the Indian partners
- Demonstrate the Australian space sector's ability to **successfully deliver space-related products and services internationally**
- Support projects which contribute to building a vision and a diverse, inclusive space sector that **inspires businesses, the Australian community and the next generation of the space workforce, researchers and entrepreneurs**
- **Increased investment in the space sector**, targeting Mutual Priority Areas

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About the opportunity



- Open competitive grant program
- Informed by stakeholder consultation and lessons learned
- Can support Missions, Payloads, or Tech (TRL4 and above)
- Grants awarded between \$1 million and \$10 million
- Projects to be completed by March 2026

Eligibility

Entities incorporated in Australia or publicly funded research organisations (PRFO) can apply. (Industry and Academia)
Joint applications are acceptable and encouraged, but an Australian lead must be appointed.

We will only accept applications:

- where you can provide **evidence** from your board (or chief executive officer or equivalent if there is no board) that the project is supported, and that **you can complete the project** and meet the costs of the project not covered by grant funding
- at least **\$1 million in eligible expenditure**
- evidence of support from your Indian partner organisation/s and that your project has **links to India's** space industry and/or supply chains
- where you can provide **evidence** that a minimum of **80 per cent** of the investment will be made in Australia, for the benefit of Australian space industry organisations.

Joint applications

Joint applications are acceptable and encouraged, but an Australian lead must be appointed.

You can include a mixture of industrial and academic partners.

Your application should identify all members of the proposed group and include a letter of support ([template provided](#)) from each of the project partners.

Each letter of support should be signed by executive level personnel and include:

- details of the project partner
- an overview of how the project partner will work with the lead organisation and any other project partners in the group to successfully complete the project
- an outline of the relevant experience and/or expertise the project partner will bring to the group
- the roles/responsibilities the project partner will undertake, and the resources it will contribute (if any)
- evidence that the project partner is an Indigenous business or organisation (if applicable)
- details of a nominated management level contact officer.

Assessment criterion 1



The benefit of your project to the Australian space industry (30 points)

You should demonstrate this by describing:

- a. how your project will build the capability and capacity of the Australian space industry by developing space heritage and increasing Technology Readiness Levels (TRL) from TRL4 onwards for missions, payloads and space-based technologies or technologies which support space-based assets
- b. how a minimum of 80 per cent of the investment will be made in Australia for the benefit of Australian space industries
- c. how your project will support jobs creation in the Australian space industry
- d. how your project will contribute to building a vision and a diverse, inclusive Australian space ecosystem that inspires businesses, the Australian community and the next generation of space workforce, researchers and entrepreneurs. For example: how will your project support and utilise Indigenous talent and capabilities, and how will your project support gender diversity, through consortium or contracting arrangements that grow local experience and reputation, ongoing employment in space and adjacent sector organisations or supply chains.

Assessment criterion 2



Your project's ability to grow and strengthen collaboration with the Indian space sector (30 points)

You should demonstrate this by describing:

- a. how your project will unlock opportunities for the Australian space sector, including growing collaborations and delivering products and services to ISRO, the Indian space industry and their supply chains in Australia
- b. Which Mutual Priority Area/s your project can be categorised under and how it will advance capability in this area for the Australian and Indian space sectors. If your project does not fall within any MPA, please demonstrate how it is aligned with, or will contribute to advancing capability within, one of those areas.

When constructing your response you may wish to also refer to the [Advancing Space: Australian Civil Space Strategy 2019-2028](#) and its associated roadmaps.

Assessment criterion 3



Your capacity, capability and resources to deliver the project (20 points)

You should demonstrate this by describing:

- a. you and your project partners track record managing similar projects, and access to personnel with the right skills and experience, including project management and technical staff
- b. your access to any infrastructure, capital equipment, technology and intellectual property
- c. how you will ensure that the project will continue to deliver outcomes beyond the grant funding period
- d. your strategy to manage the project, this should include (but is not limited to):
 - scope, implementation methodology and timeframes
 - how you plan to mitigate delivery risks (including national security risks)
 - how you plan to secure regulatory or other approvals

Assessment criterion 4



The impact of grant funding on your project (20 points)

You should demonstrate this by describing:

- a. the total investment the grant will leverage, including direct contributions to the project and co-contributions, if any, to the project from sources including but not limited to project leads, partners, state and territory governments, investors and venture capital (VC)
- b. your plans for unlocking future investments and opportunities in the space sector due to the project activities and technological development resulting from this grant

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Key documents walkthrough



You must provide the following documents with your application to support your responses to the assessment criteria.

- A project plan ([template provided](#))
- A project budget ([template provided](#))
- Evidence of support from your board, CEO or equivalent ([template provided](#))
- Evidence of support from your Indian partner organisation/s (e.g. letter of support or MoU)
- Letters of support from all project partners ([template provided](#))
- Trust deed (if applicable)

2MB limit when uploading, total upload limit of 20MB.

If successful, you will need to formally enter into a Partner's Agreement ([template provided](#), non mandatory)

Key documents and links

- [Grant opportunity guidelines](#)
- [Sample application form](#)
- [Standard grant agreement](#)
- [Board CEO letter of support](#)
- [Partner Agreement template](#)
- [Project Partner letter of support](#)
- [Project Plan template](#)
- [Budget template](#)
- [FAQs](#)

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NOTE : On the following slides

- The following slides from the Office of the Space Regulator, ACMA, DEC are for information only
- The grantees who are successful will still need to apply to launch/payload permits, Spectrum licenses and Export Control permits per the process , independent of the grants process to the corresponding Agencies if relevant

Indicative timeline



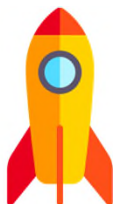
Date	Event
12 April 2023	Roundtable
13 June 2023	Applications close
Sep-October 2023	Announcement
	Negotiate grant agreements
	Projects begin
March 2026	Projects end

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Australian launch and return authorisations

Launches

Australian launch permit



Launch facility licence

100km

Aus. high power rocket permit



Rockets other than high power



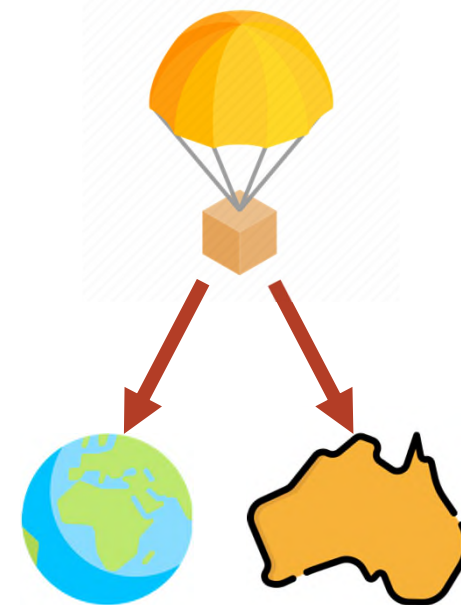
Australian Government
Civil Aviation Safety Authority

Space objects



Overseas payload permit

Returns



Return Authorisation

More information

- Email regulation@space.gov.au
 - Contact us as early as possible if you're planning any space activities – this will help us understand your plans and give you the information you need
- Visit our website at space.gov.au
 - Regulating Australian space activities > Conducting Australian space activities
 - Information about licences, permits and authorisations including guidance and application information





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Space and Spectrum Management

Mark Arkell
Manager
Space Systems Section
March 2023

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ACMA

Independent Commonwealth statutory authority

Communications and media regulator

Radiocommunications

Telecommunications

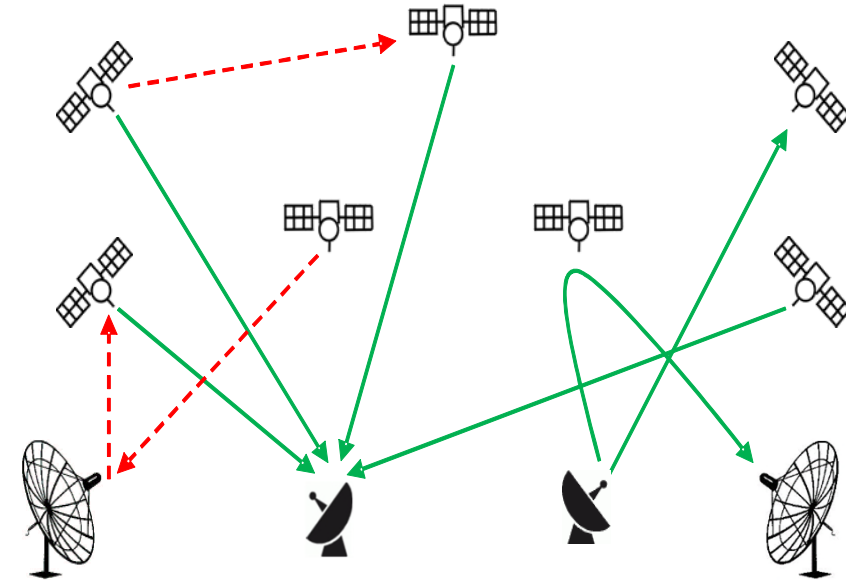
Broadcasting

Australia's national spectrum manager

Space

Managing domestic access to the radiofrequency spectrum (radiocommunications licensing)

Representing Australia's space spectrum management interests internationally including filing and coordination of Australian satellite systems with the ITU



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Licensing - earth stations

Frequency coordination is undertaken by accredited persons

views of existing licensee(s)

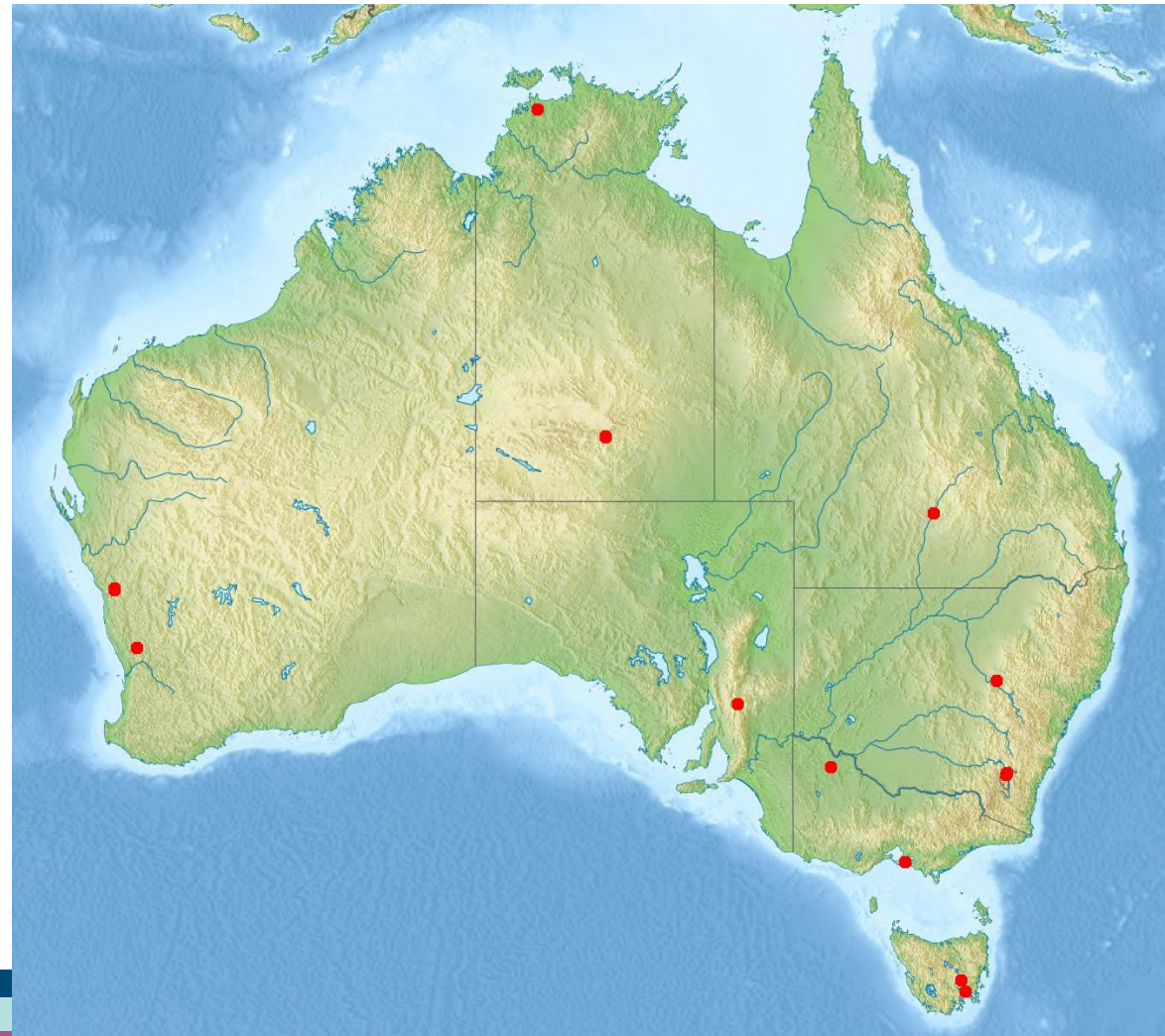
Licence applications need to be consistent with ITU filing

Individual licensing: gateways, spacecraft control, launch support

Earth and earth receive

Scientific – demonstrating, testing, trial of new technology

Fees apply



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Need for ITU satellite filing

The International Telecommunication Union (ITU) requirement

Licence applications need to be consistent with ITU filing

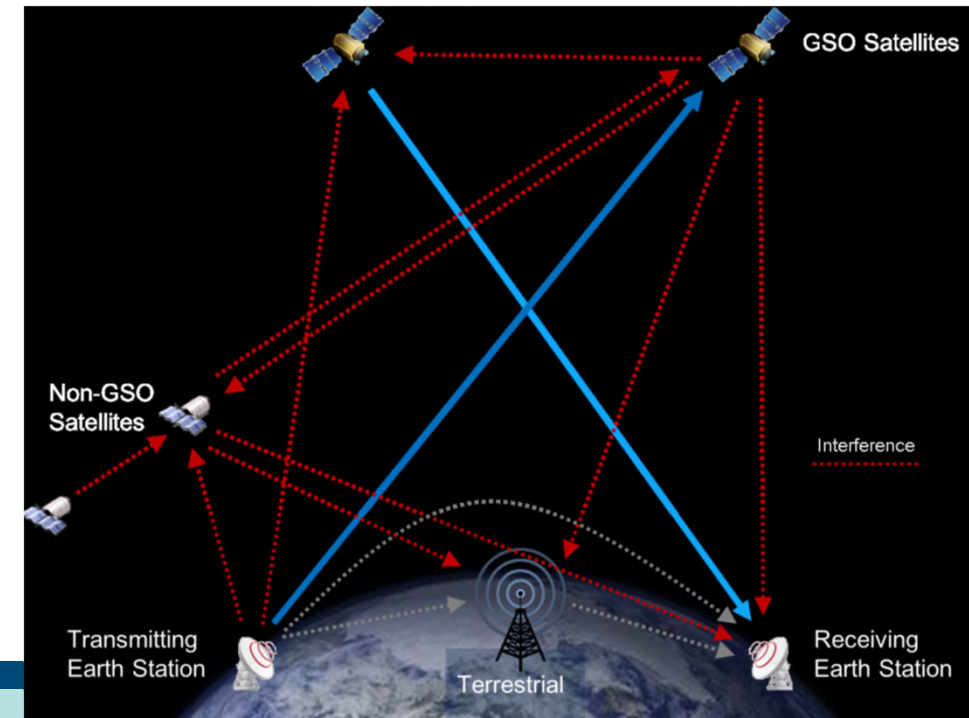
Space Agency consults with ACMA on launch permits

Seek help and plan in advance

Fees apply

NTC ID	Adm.	Station/Satellite Name	BR Registry Date	Type of submission
122545250	AUS	CUAVA-2	06.10.2022	Advance publication information
122545230	AUS	BINAR-234-567	12.09.2022	Advance publication information
122545182	AUS	SPIRIT	18.07.2022	Advance publication information
120545287	AUS	CSIROSAT-1	07.12.2020	Advance publication information

<https://www.itu.int/ITU-R/space/asreceived/Publication/AsReceived>



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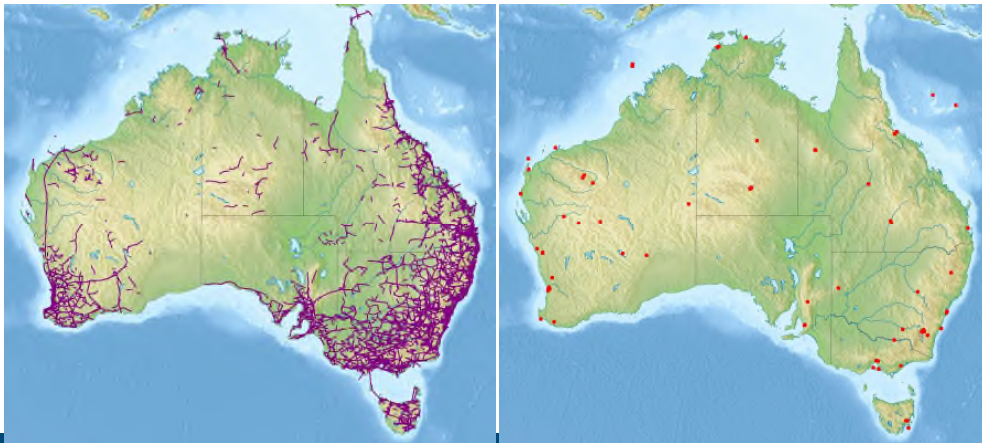
Observations

Spectrum is a shared resource

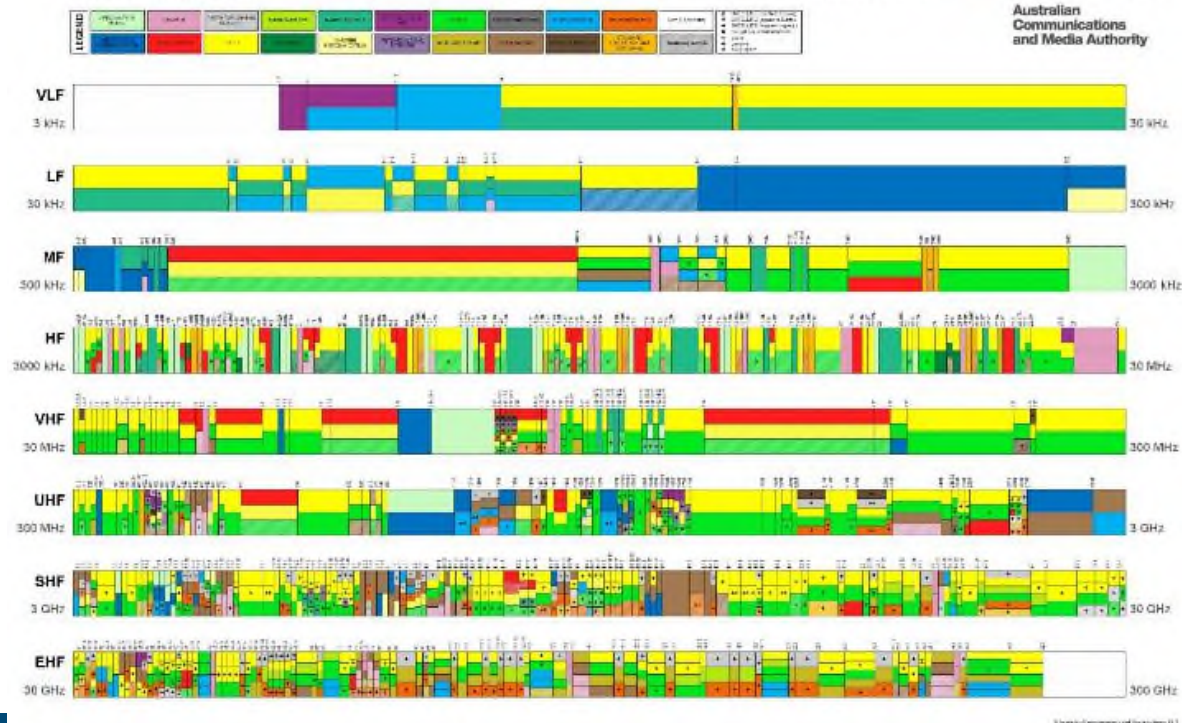
Seek professional advice

Plan early

Benefits of collaboration to avoid duplication



Australian radiofrequency spectrum allocations chart



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Thank you

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Filing FAQ

Not required for launch vehicles, rockets

Business case as to why should file:

Purpose, financial viability, technical expertise and benefits to Australia

Demonstrate consistency with spectrum arrangements (ACMA & ITU)

Consult with existing satellite operators if frequency overlap

New operators requests assessed by ACMA Authority (Board)

ACMA fee for assessment of applications:

New operators: \$1130 plus \$226 per hour (previously \$35,956)

Existing operators: \$226/hour (10-100 hours)

ITU fee to file is passed on to the operator

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ACMA space references

Australian procedures for the coordination and notification of satellite systems

Business Operating Procedures, especially:

earth/earth receive

Radiocommunications (Charges) Determination 2022 (Part 6)

Satellite coordination: satellite.coordination@acma.gov.au

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ACMA general references
Australian Radiofrequency Spectrum Plan

Frequency band plans

Frequency coordination

Spectrum embargoes

ACMA Register of Radiocommunications Licences (RRL)

Apparatus licence information

Licence fees

Accredited persons

Five-year spectrum outlook

Spectrum forms

General Enquiries: info@acma.gov.au

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ITU references

ITU Space Services Department (SSD)

Space Seminars and Workshops

Radiocommunication Seminars and Workshops

ITU Radio Regulations

ITU filing procedures for small satellites

ITU Rules of Procedure

ITU Cost recovery for satellite network filings

ITU “as received”



Australian Government

Department of Defence

Strategy, Policy, and Industry Group

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International Space Collaborations and Australia's Export Controls

28 March 2023

Mr Saurabh Sapre

Assistant Director – Technical Assessments

Defence Export Controls, Department of Defence



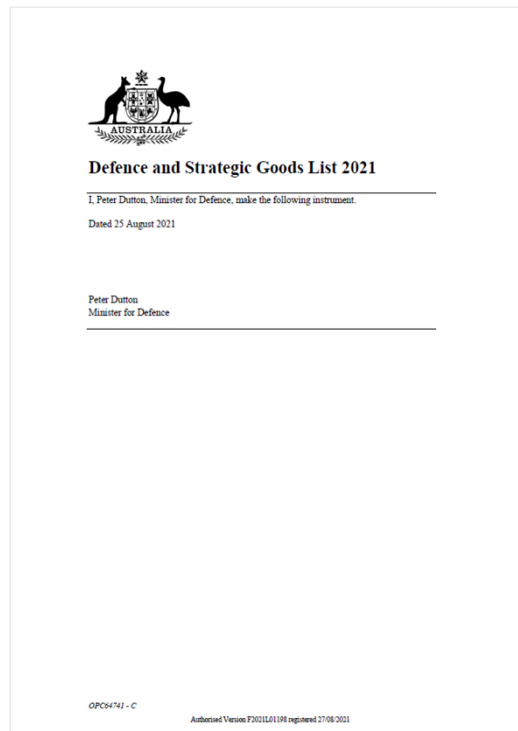
Why should we care about export controls?

- Safeguards Australia's national interest, national security and intellectual property.
- Ensures our access to technology and Australia's reputation as a trusted trader.
- Export controls are not optional, it's a legal obligation.
- Integrity matters and your and your organisation's professional reputation could be at stake.
- Your activities could be disrupted in unexpected ways costing you time and money.



Defence and Strategic Goods List

- The Defence and Strategic Goods List specifies the goods, software and technology that are controlled when exported, supplied, brokered or published.



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The Defence and Strategic Goods List

The Defence and Strategic Goods List (DSGL) specifies the goods, software and technology that are controlled when exported, supplied, brokered or published.

The DSGL has two parts:

**Part 1:
Munitions
list**

**Part 2: Dual
use list**



Part 1 of the Defence and Strategic Goods List (DSGL)

The types of goods covered in Part 1 of the DSGL include:

- ML1-20 - Items (systems, part and components) specially designed or modified for military use
- ML21 – Software associated with any ML item
- ML22 – Technology associated with any ML items
- ML901 – 910 – Specific Australian only controls on firearms and explosives not covered elsewhere



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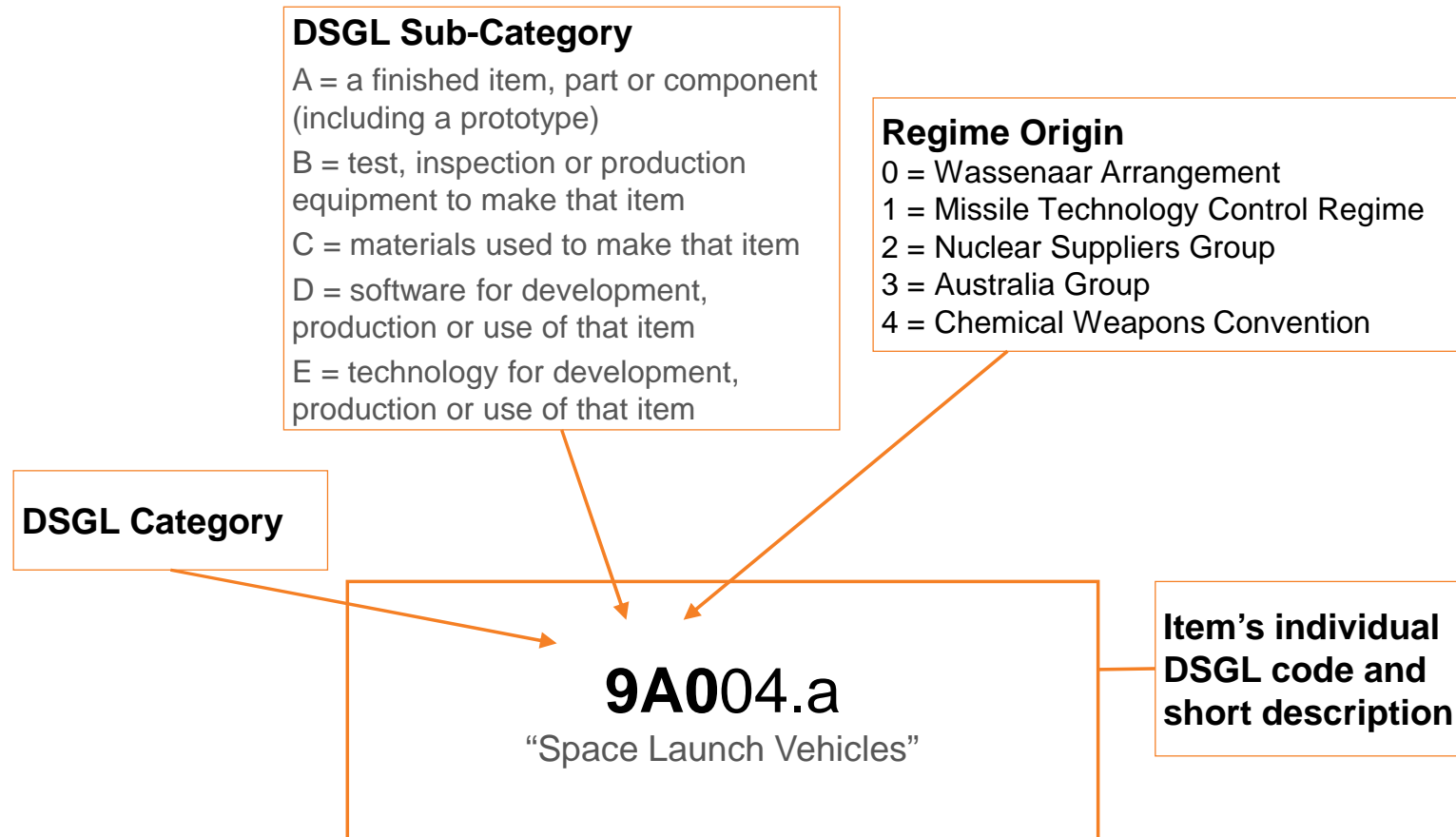
Part 2 of the DSGL

The types of goods covered in Part 2 of the DSGL include:

- Category 0 – Nuclear Material, Facilities and Equipment
- Category 1 – Materials, Chemicals, Microorganisms and Toxins
- Category 2 – Materials Processing
- Category 3 – Electronics
- Category 4 – Computers
- Category 5 – Telecommunications and Information Security
- Category 6 – Sensors and Lasers
- Category 7 – Navigations and Avionics
- Category 8 – Marine
- Category 9 – Aerospace and Propulsion



Deciphering the DSGL Dual-Use Codes



DSGL Sub-Category

A = a finished item, part or component (including a prototype)

B = test, inspection or production equipment to make that item

C = materials used to make that item

D = software for development, production or use of that item

E = technology for development, production or use of that item

Regime Origin

0 = Wassenaar Arrangement

1 = Missile Technology Control Regime

2 = Nuclear Suppliers Group

3 = Australia Group

4 = Chemical Weapons Convention

DSGL Category

9A004.a

"Space Launch Vehicles"

Item's individual
DSGL code and
short description

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Case Study: CubeSat Development

Scenario: Your research organisation has been tasked with developing a CubeSat.

- This CubeSat will be developed with international collaborators.
- The CubeSat will be manufactured in Australia but will be sent overseas for testing and then returned to Australia.
- Launch details are yet to be decided.



Case Study: CubeSat Development

Why does Australia control CubeSats and their associated technology?

- Orbital surveillance networks
- Meteorological satellites
- Land and air space reconnaissance
- Communication
- Navigation
- Cartography
- Space-based weapon systems



Where are CubeSats controlled in the DSGL?

Question 1

- Is the CubeSat specially designed for military use?

Question 2

- What is the most relevant DSGL Category:
 - Category 0 – Nuclear Material, Facilities and Equipment
 - Category 1 – Materials, Chemicals, Microorganisms and Toxins
 - Category 2 – Materials Processing
 - Category 3 – Electronics
 - Category 4 – Computers
 - Category 5 – Telecommunications and Information Security
 - Category 6 – Sensors and Lasers
 - Category 7 – Navigations and Avionics
 - Category 8 – Marine
 - Category 9 – Aerospace and Propulsion



Case Study: CubeSat Development

Where are CubeSats controlled in the DSGL?

9A004

- Space launch vehicles,
- “spacecraft”,
- “spacecraft buses”,
- “spacecraft payloads”,
- “spacecraft” on-board systems or equipment,
- terrestrial equipment,
- and air-launch platforms.

Where:

“Spacecraft payloads” incorporating items specified by:

3A001.b.1.a.4., 3A002.g.,

(related to space qualified electronics and atomic frequency standards)

5A001.a.1., 5A001.b.3., 5A002.c., 5A002.e.,

(related to space communications processes)

6A002.a.1., 6A002.a.2., 6A002.b., 6A002.d., 6A003.b.,

6A004.c., 6A004.e., 6A008.d., 6A008.e.,

6A008.k., 6A008.l. or

(related to sensors such as, optical, thermal, SAR, target tracking, cryocoolers etc.)

9A010.c.;

(related to structural components and isolation systems to actively control distortion of spacecraft.)

On-board systems or equipment having any of the following functions:

‘Command and telemetry data handling’;

‘Payload data handling’; or

‘Attitude and orbit control’;



Case Study: CubeSat Development

Will you need an export permit for international collaboration?

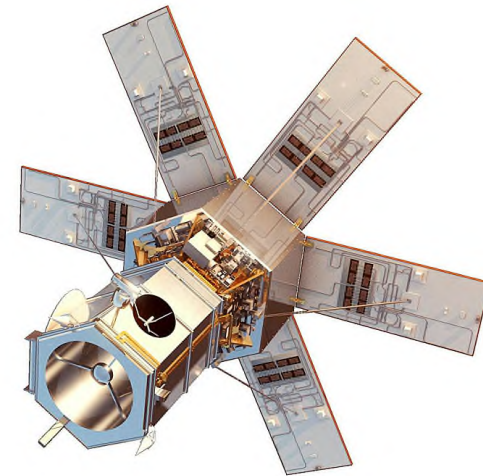
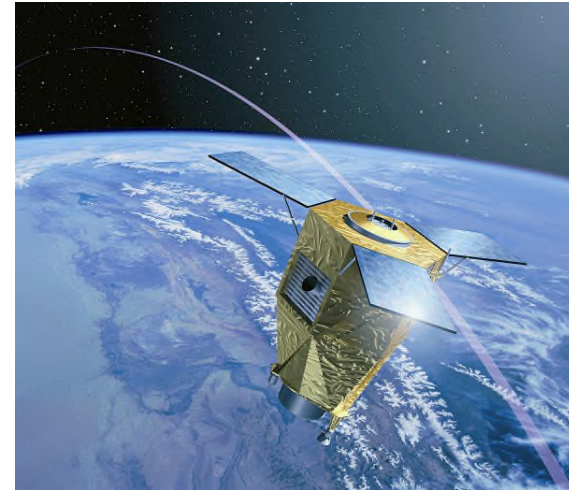
- Yes, with a few minor exceptions.

When should you come to DEC for a permit?

- As soon as possible.

Will this permit process delay the development and production of the CubeSat?

- No, by reaching out to DEC early, DEC in most cases can create a custom multi-shipment permit for the life of your project (up to 5 years).
- DEC typically finalise permits within 35 business days.



Case Study: CubeSat Development

A member of your research team has decided to move overseas but will still be collaborating on the project. Will they need an export permit?

- Yes, with a few minor exceptions.

You have decided to publish your findings so far. Do you need an export permit?

- No, there is an exception for publication and pre-publication of dual use technology.
- You still need a permit for collaboration until this point and for further collaboration.
- If the CubeSat was specially designed for military use you will need a publication permit.

Would conference posters require an export permit?

- Maybe, depending on the level of detail and what is in the public domain.



Case Study: CubeSat Development

Will you need a permit to export the CubeSat for testing

- Yes, CubeSats are controlled under 9A004 of the DSGL.

When should you come to DEC for a permit?

- As soon you know what you are sending and where you are sending it to.



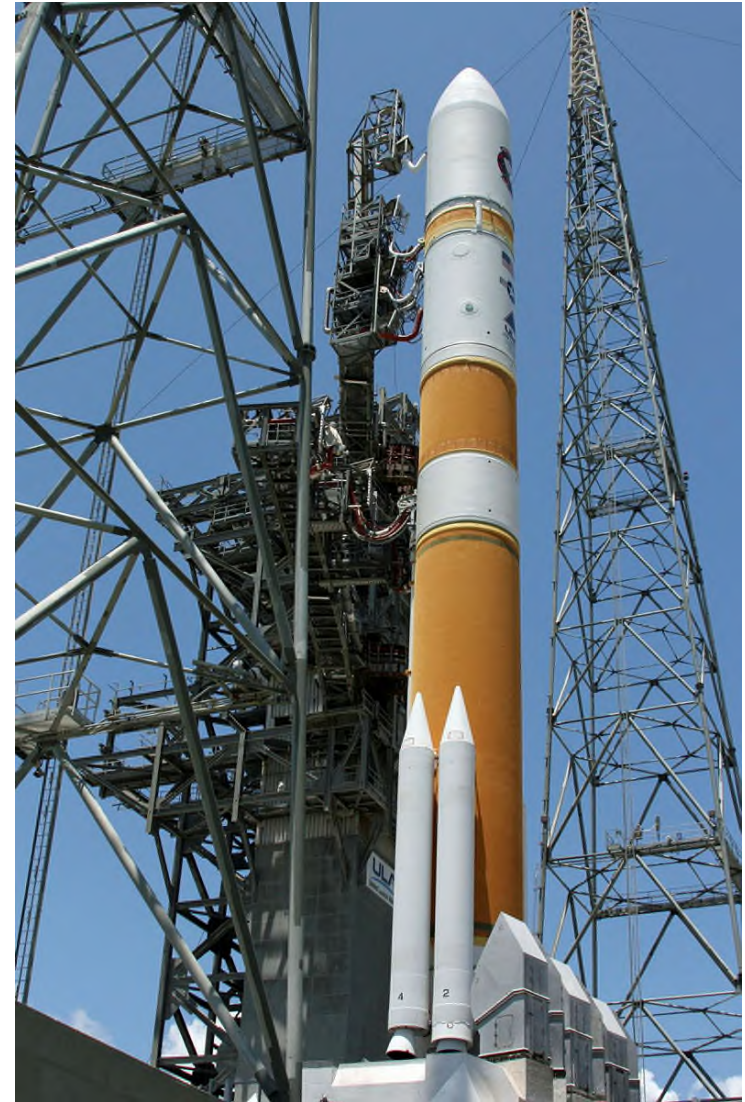
Case Study: CubeSat Development

Will you need a permit if you are exporting the CubeSat to be launched from overseas?

- Yes, CubeSats are controlled under 9A004 of the DSGL.

Will you need an export permit to launch the CubeSat from Australia?

- No, export controls only apply if goods are intended to arrive in another country



Common misconceptions, mistakes & myths

- “It’s commercial off-the-shelf, so it’s not controlled” - False
- “I’m not interested in the military applications of my technology, therefore no one else would be interested either.” - False
- “If I take it with me as carry-on luggage, I don’t have to worry about export controls” - False
- “Sending information via email or SMS isn’t an export” - False
- “Export controls are a hindrance and will stop me from collaborating and progressing my project’s goals” - False



Where can I find further information?

- Defence Export Controls website: www.defence.gov.au/exportcontrols
- Contact us via 1800 661 066 between 8:30am to 4:30pm – Monday to Friday
- Or email: exportcontrols@defence.gov.au



A semi-transparent background image showing a helicopter in flight on the left side. In the background, there is a cityscape with a prominent building that has a tall, thin spire topped with a flag. The scene is set against a hazy, mountainous landscape.

Thank You





Australian Government
Australian Trade and Investment Commission

Tamara Bell

A/g Senior Adviser, Defence and Space - Trade



AUSTRALIA

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International Network



- 1300 experts in 66 international markets
- Support Australian Businesses in the global marketplace with expert advice, contacts, grants and practical assistance on the ground to export their goods and services overseas
- Connect investors to opportunities in Australia



Building Capacity

- Austrade has worked closely with the Australian Space Agency since its establishment in 2018, collaborating on industry initiatives and delegations to help achieve the Government's vision of a thriving Australian space sector
- This work is supported by a dedicated space sector practice within Austrade

Learn more about how Austrade can help your company connect with Australia's growing space sector



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Grants Delivery Team

- Any enquiries can be sent through to the spacegrants@industry.gov.au
- On page 4 of the grant guidelines, the steps for the application process are outlined. From when you submit your application, by 13 June 2023, to when you received funds and commence your project, it can take approximately 18 weeks.
- You must not start your project before the grant agreement has been executed. Any costs incurred are not able to be claimed against the project.
- Applications are assessed by an expert committee. The committee will use the supplementary attachments to support the information in the application. They then make recommendations to the decision maker, the Head of the agency.
- The decision maker either accepts or rejects their recommendations.
- The successful projects will be sent to the ministers office for announcement.
- Once announced we contact successful applicants and commence negotiating the grant agreement. There is 30 days in which to get the grant agreement executed.
- Once the grant agreement is executed, you can commence your project.

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Questions and next steps



- **Place your questions in the chat**
- **Slides and Q&A sent to all attendees**
- **Register for the roundtable held on 12 April 2023**



FAQs

- **80/20 funding split & co-contributions**
- **Multiple applications are possible**
- **IP ownership will be with the applicant**



Australian Government



**Australian
Space Agency**


Thank you


spacegrants@industry.gov.au

space.gov.au

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

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 [Australian-Space-Agency](https://www.linkedin.com/company/Australian-Space-Agency)

 [AustralianSpaceAgency](https://www.instagram.com/AustralianSpaceAgency)

Welcome address & Message from the Head of the Australian Space Agency

