



AUSTRALIAN COUNCIL OF DEANS OF
INFORMATION & COMMUNICATIONS TECHNOLOGY

Australian Council of Deans of ICT – ALTA Forum

CS Student Opportunities in Space

Thursday, 29 June 2023

Professor Andy Koronios
CEO & Managing Director
SmartSat CRC

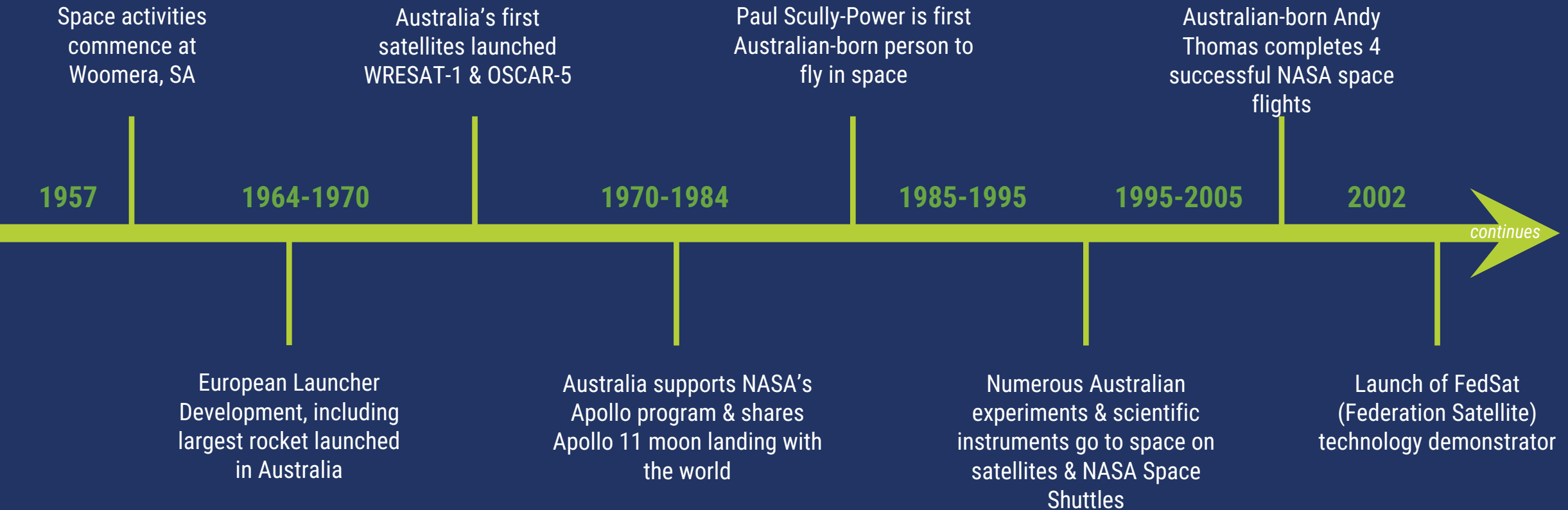
SMARTSAT
COOPERATIVE RESEARCH CENTRE



Australian Government
Department of Industry,
Science and Resources

AusIndustry
Cooperative Research
Centres Program

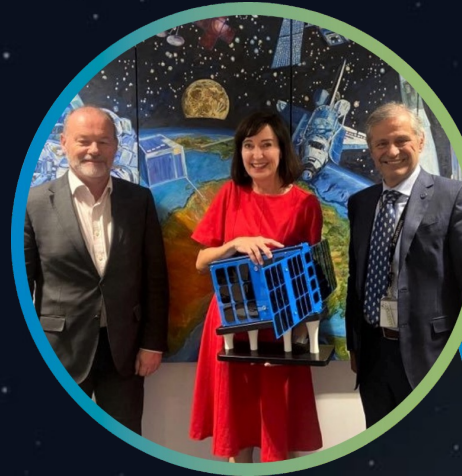
Space in Australia – a rich heritage for a small nation



Moving from the 'complex, large, few and expensive'

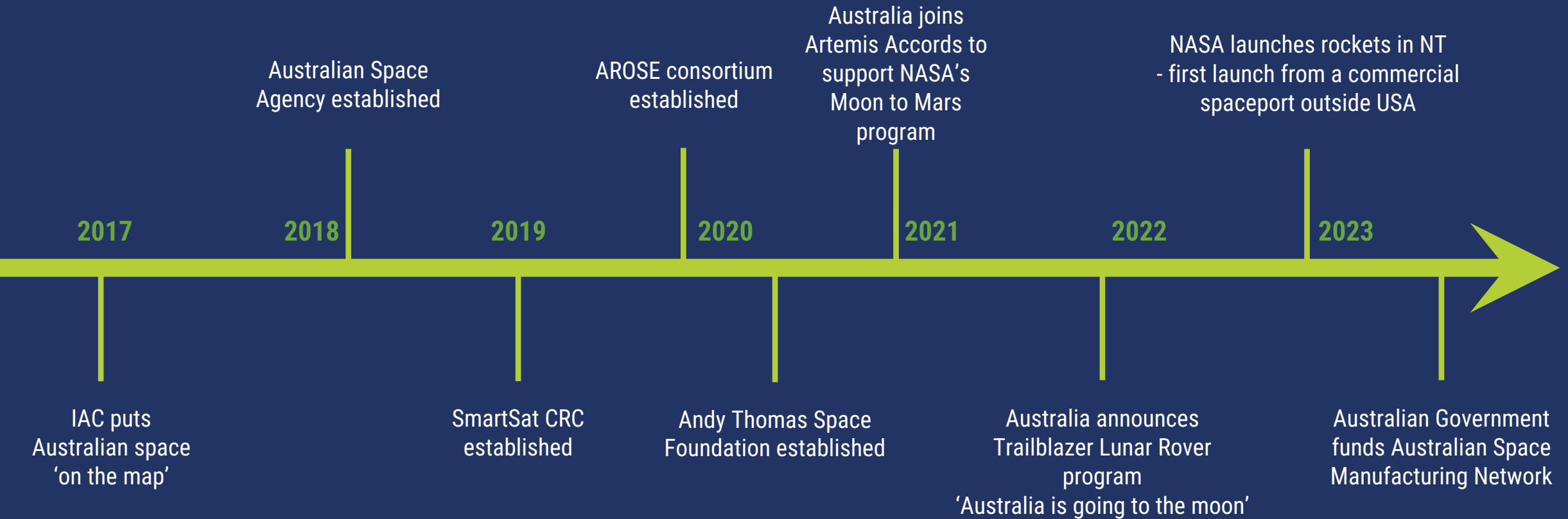


Small, smart and many...



Small doesn't mean less capable

The Democratisation of Space



The current state of space in Australia

\$5.1 Billion Economic Value

618 Organisations

16,900 People employed

Major subsectors Communications, Earth Observation & Software

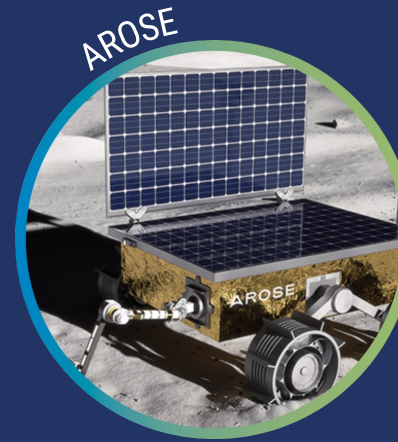
7.1% pa Industry Growth

\$787 Million Invested

~\$12 Billion Committed



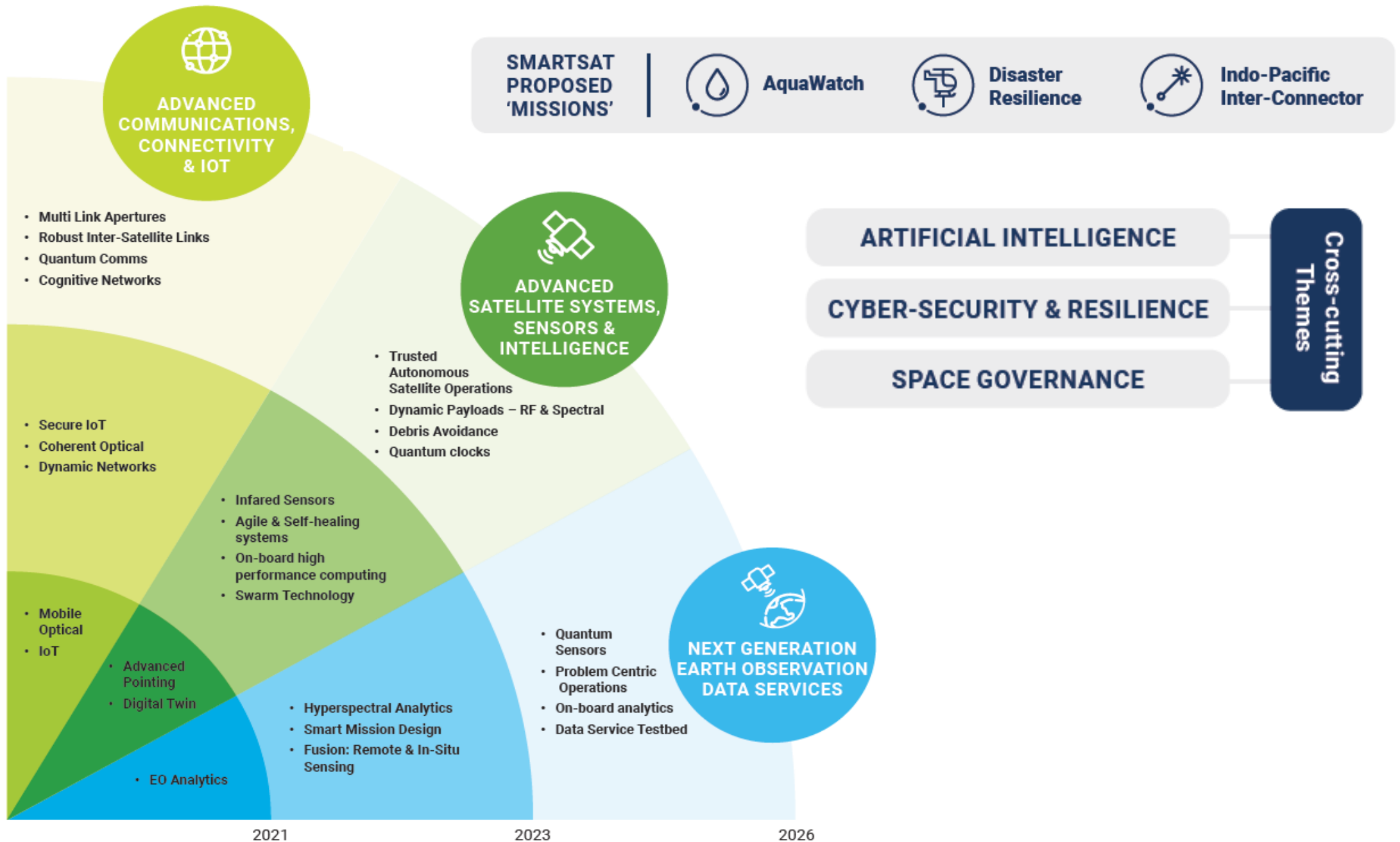
The current state of Space in Australia



Australia's largest space research centre



SmartSat Technology Roadmap



Opportunities for ICT careers?

...Limitless.



Space Industry Skills Gaps Analysis

- A SmartSat & Australian Space Agency Initiative
- Nationwide Survey of Space Ecosystem
- Approx 100 responses
- Followed by a South Australian study which included vocational/TAFE Sector

Study not yet complete.



Space Industry Skills Gaps Analysis

3 Levels

12 Skill Categories

59 Skill Groups

319 Skills

High intensity skills needs in each Tier One skill category

Category 1 - Launcher and Spacecraft Development

Category 2 - Satellite Payload and Sensor Development

Category 3 - Satellite Payload and Ground-Based Technologies Development

Category 4 - Space Exploration Technologies Development

Category 5 - Spacecraft Mechanisms, Structures and Materials Development

Category 6 - Ground Systems Technologies and Services

Category 7 - Space Environment Monitoring Technologies

Category 8 - Space System Project Management

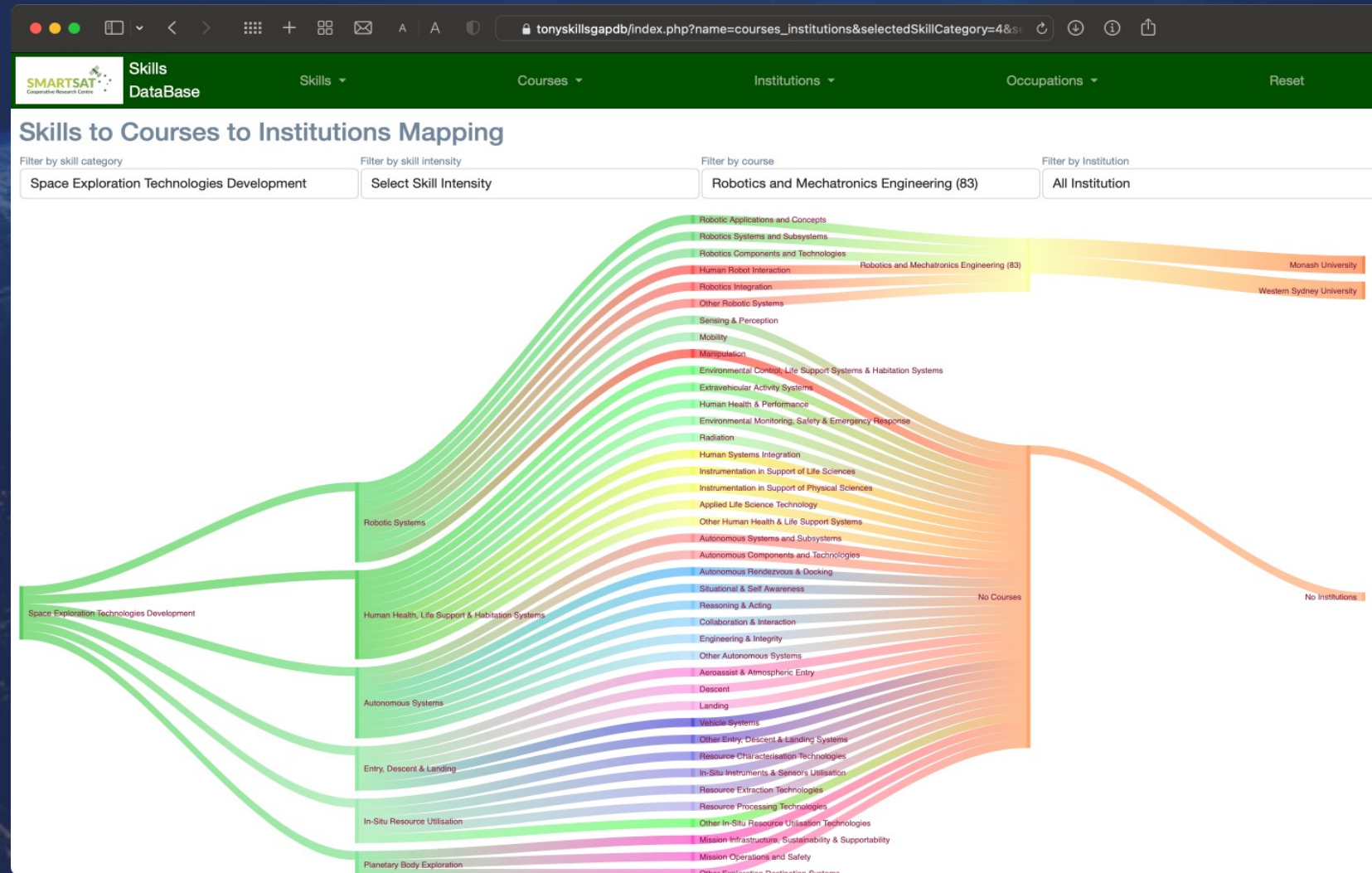
Category 9 - Software, Programming and Computer Skills

Category 10 - Space Applications

Category 11 - Space sector Enabling Skills

Category 12 - Soft Skills

Skills → Courses & Skills → Occupations Mapping



Insights

- Development of a Taxonomy to guide curriculum design
- No major gaps in curriculum
- Significant skills shortages are constraining space industry growth
- Demand will grow by at least 3x in next 5 years
- Skills in most demand include:
 - Systems Engineering
 - Project Management
 - ICT
- University qualified graduates in highest demand
- Work integrated learning in high demand for development and retention



Digitalisation means greater opportunities for ICT careers in the space industry

1. Software systems along the space value chain
2. Software defined systems
3. Digital design and digital Twins
4. Advanced Communication Systems
5. Edge Computing and real-time systems
6. Automation, autonomy and everything AI
7. Quantum Sensing, communications
8. Cybersecurity & Resilience



The space industry is one of the fastest growing sectors and offers enormous opportunities for ICT graduates

SMARTSAT
COOPERATIVE RESEARCH CENTRE



Australian Government
Department of Industry, Science,
Energy and Resources

AusIndustry
Cooperative Research
Centres Program

Thank you

User Informed • Industry Driven • Research Powered



SMARTSAT
COOPERATIVE RESEARCH CENTRE



Australian Government
Department of Industry, Science,
Energy and Resources

AusIndustry
Cooperative Research
Centres Program