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National  
University

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Thank you for the opportunity to add further comments to the Inquiry into Developing Australia's Space Industry. We very much enjoyed our time with your Committee in February and valued our conversations about the future success of Australia's space industry.

As we mentioned, the Australian National University Institute for Space represents space researchers across the university. We have captured their feedback in this submission along with the input of our Mission Control team, which has decades of international space industry experience to share. Here are our suggestions for a more successful, sustainable national space industry.

#### **Let science capture the nation's imagination**

As our Director, Prof Anna Moore, stated in our meeting, she was inspired at the age of four to become an astronomer after watching various NASA missions unfold on television in the 1970s. She came from a poor, working-class area with fewer opportunities to fulfil her dream and, more importantly, many more hurdles to climb.

Creating these grand science missions in Australia to help people understand how critical space is to everyday life is how you convince children from across Australia to study and enter the space industry. If you take this opportunity to ensure those missions are led by diverse teams (age, background, nationality, gender, etc.) you will ignite the passion for space without preference to gender, socio-economic status or race. We feel strongly that one of the top national priorities should be funding exciting, public science missions that capture the imagination of students and adults.

An established program of specific missions can create national interest in space and the broad career paths available in STEM areas and beyond. This new kind of engagement will help adults and children better understand how easy it is to access and interact with space and the space industry. It can also deliver new skills to classrooms and students around Australia to help inspire our next-generation space workforce.

The Australian research sector is world-class in areas such as astronomy and astrophysics, laser and optical physics, geodesics, earth observation, and spatial calibration, to name a few.

This community is ready now to deliver payloads for major space missions enabled by our existing international partnerships. It is an area Australia is not trailing the world—it is leading it.

Additionally, these missions can elevate civil space priorities and complement Defence priorities. For this to be successful, these missions need to be appropriately funded for maximum national impact and STEM/space industry awareness.

#### **The space agency needs more funding**

As discussed in our meeting, the Space Agency is currently funded at a level that prohibits these kinds of missions and does not reflect the GDP of our nation. It is truly underfunded for the growth level we need to triple the size of our space workforce now and create a clear pathway to build the next generation of Australia's space workforce.

#### **Stop state vs state balkanisation**

This lack of funding also has less obvious impacts that include balkanisation of state space programs and industry investments. The national agency was created less than three years ago, but today few people think about our space industry in a truly national way. In many cases, the sole focus is state-by-state space industry growth.

The national agency needs to be properly funded to give the space industry an overarching national structure. That structure will ensure the broader space industry community remains focussed on national efforts and supported by a holistic framework that does not exclude states or territories which may have differing but equally successful areas of expertise.

#### **Improve national infrastructure and access to it**

Australia has many advantages in the global space industry. Building, expanding or using essential infrastructure across priority areas will enable international recognition of the Australian space ecosystem outside of communications and launch capabilities. We have unique opportunities for industry growth and the spinning-off of cutting-edge research. We have experience successfully opening essential infrastructure to grow the national space industry, but we need government help to make that access available nationally and deliver exceptional translational outcomes.

#### **Increase space industry career diversity**

Currently, when people think of space, they most often think of human exploration or astronomy. There's a need to expand the awareness of job diversity in the space industry.

### **Boost exposure to space courses for every undergraduate and postgraduate student**

We must ensure that space-focussed courses are made available as electives across all degrees to increase exposure to students studying humanities, science, engineering, law and other degrees. The expanding space industry will need employees from all disciplines, and we should be encouraging the study of space at all educational levels.

To interest a universal pool of students in the space industry, the space agency should spearhead a campaign that illustrates jobs in space are more than just astronauts and rocket scientists. It's about people with varied skills finding employment in companies that deal with space, even if they have not had a space career in the past. We need the entire spectrum of skills in the future space industry. This includes law, marketing, business and science.

### **Encourage gender diversity**

Employers in the space industry should get training on how to write job descriptions that attract more female and non-traditional space industry applicants. There are many tactics to ensure that space, tech and STEM job descriptions remain age and gender-neutral and focus on candidates with a growth mindset.

Diversity of factors, such as gender, age, and nationality, in the workplace, can bring about amazing benefits like faster problem solving, more informed decision making and increased profits. The effort to normalise diversity in the space industry can be boosted with support from the government.

### **Harness the infancy of our space agency to establish sustainability**

The government has done a great job of consulting with experts to map out the next ten years and begin to focus on Australia's best chances for success in the global space industry.

We can do more to ensure that future space regulations enable technology and industry to develop and create a pathway for a secure, safe and sustainable space environment. Other governments with significantly more developed space programs have been allowed to evolve in unsustainable ways. They have proven unable to inject sustainable industry regulations or curb negative behaviours such as leaving defunct or aged satellites in orbit when their missions are complete.

Australian regulations should be nimble. We need the political willpower to quickly change rules and regulations to accommodate our changing space industry. Unlike other nations, we

should commit to not becoming too lax and 'going backwards' in terms of sustainability goals. Not only should Australian regulations incorporate already existing efforts, but they should also go a step further to ensure sustainability.

**Embrace world-leading Australian technology**

The Australian research community currently houses substantial value in game-changing capability. State-of-the-art sensors, new software techniques and algorithm development, encryption techniques, human body simulation for off-world applications, and so on, are globally competitive. Through suitable support and efficient translation, this work builds a sustainable space industry.

Thank you very much for your time and willingness to consider our views. We look forward to continuing our work together to supercharge Australia's space capability.

Regards

Professor Anna Moore

Director of the Australian National University Institute for Space