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IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Enabling the Future: Developing the Space Workforce (5)

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THE ROLE OF INDUSTRY IN EDUCATION

Abstract

Shortage of STEM skills, crucial for developing the space workforce, is a concern for countries internationally. In Australia, data shows a declining uptake of maths and science subjects across secondary and tertiary studies. Programs such as NASA Space Camp have demonstrated how intellectual resources and national infrastructure can be used to inspire future generations of space professionals to study STEM subjects. However, a challenge exists for emerging space powers without significant nationalised space assets. One avenue is engaging with the private sector to open the doors to their operational facilities through a public-private-partnership approach. Optus Satellite Space Systems has been an integral part of the Australian space sector for nearly 40 years, leading space technology implementation. In 2023 Optus Satellite developed a 12-month pilot school tour program that took primary/ secondary students and teachers into operational areas, control centres and the antenna farm of the Belrose Earth Station, which operates Australia's major GEO satellite assets. A science education partner was also engaged to run an experiential learning workshop to deepen students' understanding of fundamental concepts of physics underpinning space technology, space navigation and satellite communications, linked to the teaching curriculum. The pilot program underwent a formal review process in 2024. Qualitative and quantitative data was collected from students through questionnaires to quantify the impact of the program and evaluate its success in developing the future space workforce. The review also examined program benefits for existing employees. The study found that the program was successful in increasing students' awareness of space activities and career opportunities. It found that inclusion of Optus Satellite's 'Space Ambassadors', young professionals in the satellite division, to give the tours, increased representation of the generational, gender, and geographical diversity of the space industry. Students were able to see themselves as future space workers. Space Ambassadors benefited through access to in-house continuing professional development. In creating a 'gateway' to the experienced staff at the facility, Space Ambassadors and experienced staff alike also benefited from an enhanced sense of belonging and connection. Nonetheless, the study also identified challenges posed by groups of students touring a live, secure operational site, including noise, disruption, and use of employees' limited time. Ultimately, this paper argues the pilot program demonstrates that employee-led tours through a working company site has benefits for the current and future space workforce. It presents a repeatable, resource-efficient model for others to trial in their own

facilities.