

SUBMISSION

Submission to the Department of Education

Submission to the National Research Infrastructure Workforce Survey

26 March 2025

The Australian Academy of Technological Sciences and Engineering (ATSE) is a Learned Academy of independent, non-political experts helping Australians understand and use technology to solve complex problems. Bringing together Australia's leading thinkers in applied science, technology and engineering, ATSE provides impartial, practical and evidence-based advice on how to achieve sustainable solutions and advance prosperity.

National Research Infrastructure (NRI) forms the basis for much of Australia's research capability, including research with international collaborators. These facilities can only run with the expertise of the highly skilled NRI workforce. The NRI Workforce survey presents an opportunity to draw out some of the challenges in maintaining this workforce and test solutions that safeguard the future of the NRI workforce and therefore the NRI itself.

ATSE has also provided a submission to the 2026 NRI Roadmap consultation, which also discussed the NRI workforce. ATSE's submission to the Roadmap consultation urges delivery of the NRI Workforce Strategy – which had been identified as an outcome of the 2021 NRI Roadmap. In this survey response, ATSE adds the following ideas to strengthen the NRI workforce:

Recommendation 1: Plan for workforce needs as part of improving coordination and long-term planning for the NRI system.

Recommendation 2: Collect and publicly release annual NRI workforce data.

Recommendation 3: Leverage programs such as ATSE's IMNIS and Elevate: Boosting Diversity in STEM to entice new talent to NRI careers.

Strengthening the NRI workforce with long-term planning

The most recent National Collaborative Research Infrastructure Strategy (NCRIS) Census Snapshot reporting NCRIS facilities' staffing at 1,561 people in 2018-19, down from 1,809 in the previous financial year (Department of Education, 2020). This represents a significant loss of expertise from these facilities. For each staff member in 2018-19, there were 33 domestic and six international research users. The drop in NRI staffing corresponded to a drop in research user numbers that year.

As highlighted in ATSE's submission to the 2026 NRI Roadmap consultation, there is a lack of long-term planning in line with the expected lifetime of facilities. In addition to other efficiency benefits, funding certainty for facilities would also correspond to more stability for the specialist staff of those facilities. ATSE's NRI Roadmap submission urges better coordination of research funding, including for research infrastructure, across government.

As noted in ATSE's submission to the 2026 NRI Roadmap consultation, the NRI Workforce Strategy promised in the 2021 NRI Roadmap has not been delivered, despite the next NRI Roadmap being due next year. Progressing and delivering this Strategy in a timely fashion is a critical element of maintaining NRI. ATSE recommends that this planning is undertaken as part of a long-term, strategic approach for the future of NRI.

Up-to-date data on the NRI workforce would assist with planning. NCRIS Census reports are publicly available for 2015 to 2019. Collecting and sharing data including new NCRIS snapshots would support monitoring changes to the NRI workforce size and composition, including as a result of programs proposed in the current consultation.

Recommendation 1: Plan for workforce needs as part of improving coordination and long-term planning for the NRI system.

Recommendation 2: Collect and publicly release annual NRI workforce data.

Developing the next generation of the NRI workforce

NRI specialist staff bridge the gap between the user base and research facilities, playing a crucial role in advancing Australian innovation. The technical expertise of the NRI workforce enables research infrastructure to be used to its full potential, facilitating efficient access for research and industry user. Despite the importance of the NRI workforce, career pathways for technical staff are limited, with a lack of progression opportunities. Most NRI staff are employed through universities, which contribute insecure working conditions. These issues were elucidated by the Research Infrastructure Specialist Position Paper, which outlined how performance indicators and therefore progression opportunities for university-employed NRI staff are not reflective of their skills and the work they are doing (National Collaborative Research Infrastructure Strategy, 2022). The Position Paper argued that a new type of university staff classification should be developed for research infrastructure specialists and presents potential performance indicators that could be used to develop such a job family. Some universities have implemented solutions in this vein. For some facilities, an alternative appropriate solution could be to employ staff through the facility rather than through an associated university. This would bring workers closer to facility management than to research.

NRI workers develop specialised, embodied knowledge specific to the facility in which they work. It is therefore challenging to replace staff that leave. The ideas put forward in the consultation survey, including a Research Infrastructure Fellowship scheme and an Academy for Collaborative Research Infrastructure, would support retention of the NRI workforce. In addition to these important measures, ATSE recommends developing initiatives to replenish the NRI workforce and therefore maintain sovereign capability for research and research translation. There is also the potential for crossover with other fields in training the future NRI workforce. The technical skills and knowledge required for some NRI specialist roles – such as applied mathematics, electrical engineering, information technology, electrodynamics and radiation physics – are also required for defence priorities, including AUKUS implementation and Jindalee Operational Radar Network.

Attracting a diverse workforce is one mechanism to increase the talent pool. Women are currently well-represented in NRI careers: in 2018-19, about 40% of technical and managerial positions at NCRIS facilities were held by women (Department of Education, 2020). This compares favourably with the overall proportion of women in STEM-qualified jobs – currently just 15% (Department of Industry, Science and Resources 2024). Attracting and retaining other groups underrepresented in science – such as Aboriginal and Torres Strait Islander people, and people from regional and rural Australia – could provide a way to increase the size of the NRI workforce. Programs such as ATSE's [Industry Mentoring Network in STEM](#) (IMNIS) could be leveraged to introduce a new generation of STEM talent to different career pathways including NRI careers. Scholarship and support programs such as [ATSE's Elevate: Boosting Diversity in STEM](#) provide a mechanism to train STEM talent and form connections with industry.

Recommendation 3: Leverage programs such as ATSE's IMNIS and Elevate: Boosting Diversity in STEM to entice new talent to NRI careers.

ATSE thanks the Department of Education for the opportunity to respond to the National Research Infrastructure Workforce Survey. For further information, please contact academypolicyteam@atse.org.au.

References

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National Collaborative Research Infrastructure Strategy, 2022. 'Research Infrastructure Specialist Position Paper', accessed from <<https://anff.org.au/wp-content/uploads/2022/11/2022-NCRIS-Directors-Research-Infrastructure-Workforce-Position-Paper.pdf>>