Please note: the substantive content of the 2026 NRI Roadmap Survey begins at Question 20 (with prior questions dealing with administrative and other information).

As such all submissions that are published include the responses submitted from Question 20 onwards only.

Q20.

Part 2: Research themes

2.1 NRI comprises the assets, facilities and associated expertise to support leading-edge research and innovation in Australia and is accessible to publicly and privately funded users across Australia and internationally. We are seeking your input on possible directions for future national-level investment - i.e., where the requirements are of such scale and importance that national-level collaboration and coordination are essential.

The 2021 Roadmap used a challenge framework to support NRI planning and investment. With this in mind, consider likely future research trends in the next 5 - 10 years, and with respect to one or more of the 8 challenge areas identified in the 2021 Roadmap as listed below:

- describe emerging research directions and the associated critical research infrastructure requirements that are either not currently available at all, or not at sufficient scale and
- describe current national infrastructure requirements that you anticipate will no longer fit the definition of NRI in 5-10 years.

Do not limit your commentary to NCRIS funded capabilities.

Q21.

Resources Technology and Critical Minerals Processing

Q22.

Food and Beverage

Q23.
Medical Products

Q24.
Defence

Q25.
Recycling and Clean Energy

Q26.
Space

Q27.
Environment and Climate

Q28.
Frontier Technologies and Modern Manufacturing

Q29.

2.2 The 2024 statement of National Science and Research Priorities (NSRPs) includes outcomes linked to each priority to assist in identifying critical research needed in the next 5 to 10 years.
Consider the priority statements and, with respect to one or more of the 5 priority areas as listed below:

- describe emerging research directions and the associated critical research infrastructure requirements that are either not currently available at all, or
- not at sufficient scale and describe current national infrastructure requirements that you anticipate will no longer fit the definition of NRI in 5-10 years.

Do not limit your commentary to NCRIS funded capabilities, and where relevant, refer to the underpinning outcomes and research identified in the NSRPs document.

Q30.

Transitioning to a net zero future

Q31.

Supporting healthy and thriving communities

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Q33.

Protecting and restoring Australia’s environment

Q34.

Building a secure and resilient nation

Q35.

2.3 The case for a new NRI capability, or enhancements to existing capabilities, typically emerges through advocacy from research communities clustering around rigorously identified needs and goals. Such a concept could respond to a requirement for novel or expanded capacity within a domain, or across domains, and must be such that it could only be made available with national-level investment.
If you have identified such a requirement, briefly describe the need, the proposed infrastructure capability, the medium-term goals, impacted research communities, and the timeframe over which you advocate its establishment. Your response can include links to relevant existing reports.

Space Astrophysics in Australia The biggest omission to me in the current research infrastructure landscape is in space astrophysics and space science. Nearly half of all astronomy research and half of papers now utilise space-based research. (See statistics compiled by Simon Driver for the AAL Space Science Leads committee). I myself am now using ~70% space based. It is likely to become the dominant mode of astronomical research as launch costs plunge. There is a thriving but small space astrophysics community in Australia building and orbiting small telescopes (e.g. SPIRT) despite the lack of investment. The major infrastructure problem here is a lack of any science or research remit in the Australian Space Agency. It is not just money for facilities, they are not even empowered to act as a gateway to NASA, ESA etc. for our scientists, even when those agencies want them to! Australia is unique among GO8 nations in that our space agency is not responsible for science. We are also unique in not having an appropriate funding program for space astrophysics. This causes significant structural issues, for example in recent Euclid access negotiations. Who does ESA negotiate with? At least we have a space agency now (unlike at the start of the previous decade). Now we need it to broaden its remit to include science. In an ideal world we would have the agency investing at least several million dollars per year in science missions and science R&D via a competitive process. (Space activities are at the wrong scale for the ARC programs). This would bring a huge boon to the nation and harness our creativity. Space astrophysics is a natural for developing innovative technologies in partnership with industry. The ideal world would also include the concept of an Australian Space Science Institute to coordinate all this, to coordinate our links and collaborations to international agencies and to support an extensive program of data fusion of the large space survey data that is to come (Euclid, Roman, SphereX) with ground-based ones. All of this is part of a Catch-22 type situation, because space astronomy is not funded (unlike in virtually every other country) our astronomical community mainly think in terms of ground optical and radio facilities, the limited wavelengths that penetrate the Earth's atmosphere, as we have done for the last fifty years. Hence our space community remains small (though ingenious!). The two main recommendations of the Astronomy Decadal Plan are very similar to the previous one (ESO and SKA) and need to more strongly consider space astrophysics. I'd recommend such an infrastructure entity be established (this could be with the Australian Space Agency) to manage and fund space science R&D, missions and processing of large data sets, and to be empowered to negotiate with NASA, ESA etc. This would be an 'Australian Space Telescope Science Institute' and would build on highly successful international models.

Q36.

Part 3: Industry perspectives

This section is seeking input specifically from industry-based respondents. Other respondents can skip this section.

Recommendation 6 of the 2021 Roadmap related to improvements in industry engagement with NRI. To complement work on this topic that has occurred since then, we are seeking additional advice on NRI requirements as perceived by current or potential industry-based users.

Q37.

3.1 Have you (or your organisation) interreacted with or used Australia's NRI?

- (●) Yes
- ( ) No

Q38.

3.2 If so, please briefly outline the NRI capabilities you (or your organisation) have interacted with or used. Do not limit your response to NCRIS capabilities.

Q39.
3.3 Please indicate your (one or more) primary reasons for interacting with NRI:

- [ ] For expertise or advice
- [ ] Access to research resources or products
- [x] Access to equipment for research
- [ ] Access to equipment for operational reasons
- [ ] Help in translating research
- [ ] Access to data
- [ ] Support for clinical trials
- [ ] Other (please specify)

Q40.
3.4 If you answered no, please indicate your (one or more) primary reasons:

This question was not displayed to the respondent.

Q41.
Part 4: Other comments
4.1 Please elaborate on any of your above responses or add any other comments relevant to the development of the 2026 Roadmap. Your response can include reference or links to existing reports that you recommend be considered during the 2026 Roadmap development process.