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

Critical minerals processing will become more important in the next decade because of environmental concerns.

Q22.

Food and Beverage

Q23.
Medical Products

New technologies continually change state of the art medical products.

Q24.
Defence

Defence technologies require ongoing research in a broad sweep of the sciences and demand suitable research infrastructure.

Q25.
Recycling and Clean Energy

There is much research required in this area.

Q26.
Space

We may need to research geoengineering from space to reverse climate change.

Q27.
Environment and Climate

Climate change drives research and requires appropriate infrastructure.

Q28.
Frontier Technologies and Modern Manufacturing

To maintain our place in the developed world we need to invest heavily in this area.

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

Nuclear and particle physics. Research translation from these disciplines is of the highest importance for Australia in the coming decade. This includes generation of a nuclear science workforce, and accelerator physics for medical applications. Astronomy & Astrophysics. The challenges in this field include the physics of dark matter, cosmology at the terascale and deep imaging and spectroscopy, supported by supercomputing.

Q31.

Supporting healthy and thriving communities

Quantum computers and supercomputers. This developing science must reduce the carbon footprint of its massive servers. Quantum computing needs access to suitable infrastructure including an underground laboratory free from cosmic ray background.

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

NCRIS facilities should support a diverse workforce.

Q33.

Protecting and restoring Australia’s environment

NCRIS facilities have a major role in this area.

Q34.

Building a secure and resilient nation

Nuclear and particle physics. The physicists who will train the new generation of nuclear scientists and engineers need research infrastructure to develop their careers. This includes access to accelerators and to an underground physics laboratory free from the cosmic ray background.

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.

The nuclear physics and quantum computing communities need access to an underground laboratory free from the cosmic ray background. This has been developed by capital grants by the federal government and the Victorian government at the Stawell Underground Physics Laboratory in western Victoria. Operating costs need to be covered by NCRIS. The federal government, the Universities' and CSIRO's astronomy community have made a large investment in the Square Kilometre Array and a strategic partnership with the European Southern Observatory, world leading research facilities. ESO membership needs to be secured, and Australia's ability to build state of the art instrumentation for these facilities should be supported by NCRIS to get full value from the investment and to make world leading discoveries. These discoveries bring young people into science and engineering and make Australia a peak performer among our peers.

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
- [ ] 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.

Peer nations to Australia all recognise the need for state of the art infrastructure. While scientists working in small labs can make an important contribution, often the big advances come from research infrastructure that is beyond the capability of individual universities, research institutions and companies.

Q49.
4.2 Optional Document Attachment.
Note: Our strong preference is that answers are provided against the relevant questions in the survey. However, this file upload option is available for submissions in file format, where needed. Please ensure the document includes your name or organisation.