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

The global trend for astronomy includes multi-wavelength, multi-messenger astronomy, with mega-telescopes, international collaboration with large teams and a requirement for high-level HPC to answer some of the most enigmatic questions about the universe. The Academy of Science's Astronomy Decadal plan 2016-2025 outlines key priorities for international facilities including the SKA Observatory, and world-class optical facilities (specifically 8-m telescopes and future engagement with ELTs). Since 2017, Australia entered a 10-year strategic partnership with the European Southern Observatory, providing access to facilities, student training opportunities, international collaborations and industry opportunities. The mid-term evaluation of this report (https://www.industry.gov.au/publications/mid-term-evaluation-access-world-leading-astronomy-infrastructure-program) found the investment was cost-neutral, noting the benefits will be a lag indicator. As a mid-term outcome this is an excellent indicator of the value of such a partnership. The SKAO began construction in 2022 in Australia, and the first images have already been seen. The SKAO is already driving excellent outcomes in Australian industry, particularly through software contracts and local employment, and connection with Wajarri Yamaji, as the Traditional Owners and Native Title Holders of Inyarrimanha Ilgari Bundara, the CSIRO Murchison Radio-astronomy Observatory site where the SKA-low is located. Future requirements for Australian astronomy (and for Australia to remain at the forefront of astronomy worldwide) mean continued access to international facilities in the coming decade and onwards. International partnerships such as SKAO and ESO provide not only Australian astronomers access to these world class facilities, but instrumentation project flow back to Australian industry, opportunities for technology development and transfer, student training and exchange, and development of international collaborations. In addition, retaining a vibrant suite of Australian telescopes is important for instrument development, student training, and world-class science taking advantage of Australia's position on the globe. Australia's role in hosting a gravitational-wave detector on the timescale of 10+ years should be considered given the national strength in this area (including 2 ARC Centres of Excellence). Astronomy computing requirements include access to Tier 0 and Tier 1 facilities for theoretical simulations, and Tier 1 / 2 facilities for telescope data reduction, and analysis. There is a heightened requirement for high performance data storage, and robust data archives. These requirements are not limited to astronomy – many disciplines will have similar requirements so a national approach is warranted (however this is no requirement for facilities to be co-located, it may be better to distribute as makes sense).

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.

An emerging requirement is for an Underground Physics laboratory which will enable cutting-edge science such as experiements to detect dark matter, quantum technologies testing, defence applications, and radio-biology. The Stawell Underground Physics Laboratory (SUPL) is currently installing first experiments, and will be a growing research infrastructure asset over the coming years.

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.

This question was not displayed to the respondent.

Q39.

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

This question was not displayed to the respondent.

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.

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.