

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

- Emerging directions: integration of clean energy production with other industries, i.e. combining solar energy production with agricultural production, known as agrivoltaics. - Critical research infrastructure: demonstration sites for proof of concept and long-term information to guide Australian applications.

Q26.
Space

Q27.
Environment and Climate

- Emerging directions: forecasting of ecosystem productivity and water use metrics to better inform their management. Better accounting for carbon stored in natural and managed ecosystems, including how the carbon stocks vary year-to-year. - Critical research infrastructure: ecosystem observatories that measure carbon and water fluxes alongside meteorological variables to link ecosystem response to climate variability. TERN covers some Australian ecosystems very comprehensively, but many are missing. There is also a paucity of long-term observations from agricultural systems, despite its importance to Australia's economy. What currently exist are short-term (i.e. <5 year) studies in Agricultural systems that are mostly supported by industry funding. What's required is a more objective, government funded set of baseline measurements in agricultural systems that form the foundation of our understanding of carbon and water cycling in these systems. Like the Bureau of Meteorology provides the foundational observational data that underpins our understanding of weather and climate in Australia. A longer-term vision and support for observational data will enable better understanding of ecosystem response to climate. For example, TERN data currently provide a critical input to parameterize global vegetation dynamic models used explore ecosystem-climate dynamics on the global scale. Improvements and expansion of ecosystem monitoring RI in Australia will ensure Australia is more accurately represented on the global scale.

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

- Critical research infrastructure needs: better accounting of emission sources, and subsequent sinks of carbon, how long these sinks can be maintained in different reservoirs, and what is driving change in these sinks over time. For example, accounting for the effect of ENSO cycles on carbon storage limits in agricultural soils.

Q31.

Supporting healthy and thriving communities

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Q33.

Protecting and restoring Australia’s environment

- Emerging directions: many regions in Australia are facing a drying trend, so managing ecosystem water needs with those of domestic and industry needs will be a challenge in the future. - Critical research infrastructure needs: better monitoring of water cycle in key ecosystems in Australia, integrating above and belowground water measurements to understand threshold ecological water needs that can inform better water management. For example, support for critical zone observatories that couple belowground measurements with aboveground measurements from existing research infrastructure, such as flux tower observatories.

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.

Better investment in, and support for, research infrastructure operational staff. One of the biggest challenges we face in running RI is keeping skilled staff employed, especially when competing with more desirable contract conditions from industry. If we could offer better, mid-term job security, this problem could be mitigated.

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.

Since its establishment, NCRIS and the NRI platforms it supports have become vital for growing and maintaining Australia's reputation as a global research and development powerhouse. Support for NCRIS should continue, with consideration beyond a 5-year at a time cycle.

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.