

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

My later comments about needs of the mathematical sciences are relevant for scientific endeavours at achieve almost all of these priorities.

Q31.

Supporting healthy and thriving communities

My later comments about needs of the mathematical sciences are relevant for scientific endeavours at achieve almost all of these priorities.

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

My later comments about needs of the mathematical sciences are relevant for scientific endeavours at achieve almost all of these priorities.

Q33.

Protecting and restoring Australia's environment

My later comments about needs of the mathematical sciences are relevant for scientific endeavours at achieve almost all of these priorities.

Q34.

Building a secure and resilient nation

My later comments about needs of the mathematical sciences are relevant for scientific endeavours at achieve almost all of these priorities.

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.

I write concerning the mathematical sciences in Australia, which up to now have received no funding from the National NCRIS program. The mathematical sciences play a critical role in every area of Australia's scientific endeavour to face our major challenges: climate change, technological advances, maintaining a healthy, cohesive and resilient society, etc. The mathematical sciences rely on collaborations both nationally and internationally, and I contend that building and supporting networks of mathematicians should be regarded as critical National Research Infrastructure. I comment on several important criteria concerning National Research Infrastructure to support and explain this view. I use as an exemplar the MATRIX Mathematics Research Institute <https://www.matrix-inst.org.au/>, uniquely our national incubator for many emerging mathematical disciplines. 1. MATRIX has a wide user base. It runs a national residential weekly workshop program with participants across the country and the world. It reports annually through a book series published by Springer. No individual institution could support such an institute – it is truly National. 2. MATRIX is adaptable: it requires physical infrastructure/space to support its program and this is not completely guaranteed (prepared to change if necessary); during the pandemic the program adapted to pandemic restrictions: this led to online collaborations with more established international residential research institutes. 3. Benefit to Australia: MATRIX is the only one of its kind in Australia. Its existence facilitates national (Australian) linkages with much more established research institutes in the US (MSRI Berkley), UK (INI Cambridge), Germany (MFO Oberwolfach), Japan (MFO Kyoto), China, and other countries: e.g. tandem in-person workshops are run with MFO Oberwolfach and MFO Kyoto. 4. If the MATRIX Mathematics Research Institute failed, Australia would have nothing to offer any other country in terms of its national research infrastructure supporting mathematical networks. We would be absolute paupers! And I consider this as totally inappropriate for a country with our aspirations and challenges. Although the mathematical sciences have received no NCRIS funding, there has been one successful Australian Research Council LIEF grant: building on this funding success, the MATRIX Mathematics Research Institute won a grant from the US Simons Foundation. If there is a zero National Research Infrastructure allotment, then there is no possibility to build/multiply this support for the mathematical sciences. 5. Some History: The first national review of mathematical sciences (by the Australian Research Council and the Australian Academy of Science) in 1995 recommended establishment of such an institute. Subsequent national reviews (2006, 2016) reiterated this. MATRIX was initiated in 2015 – growing from an ARC Centre of Excellence, and then getting support from several universities. It has been built on “shoe-string funding” essentially by the mathematical sciences community and requires (and deserves) national recognition and funding as part of Australia's National Research Infrastructure. Review reports can be found at these sites: <https://www.science.org.au/supporting-science/science-policy/submissions-government/report%E2%80%94mathematical-sciences-adding> <https://review.ms.unimelb.edu.au/> <https://www.science.org.au/support/analysis/decadal-plans-science/decadal-plan-mathematical-sciences-australia-2016-2025>

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.