

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

RI workforce NCRIS has been a powerful enabler of Australian R&I, providing critical sovereign capabilities for the national scientific effort. However, UQ believes that more importance must be placed on centring the RI workforce as a key component of the 2026 Roadmap as a major resource. There is an ongoing need to provide job security, career progression, and upskilling to the expert workforce that are the powerhouse that drives all NCRIS activities. NCRIS must be able to incubate the next generation of its workforce across all of its disciplines, facilities, and projects. This should allow the creation of meaningful career pathways that will promote the retention of staff and their expert skillsets. An example may include the establishment of NCRIS ECR Fellowships which could be extended to highly skilled early-career staff whose expertise spans facilities. A people-first approach should be supported by security of funding to ensure the ongoing employment of RI experts. We suggest longer-term operational funding for NCRIS projects to support core staff through job security and career progression. Funding framework UQ strongly supports the Accord proposal to move NCRIS to sustainable, ongoing Government funding. As noted above, this should include a component of longer-term operational funding for projects to provide ongoing employment for RI experts. Also, there is a need for federal, state and territory governments to co-operate on a national NCRIS framework to support stability, collaboration, and scale in sovereign RI. The current model requires institutions to negotiate co-funding with state/territory governments every five years, aligned with new Roadmaps. However, the Department is moving towards phased funding, leading to overlapping cycles and challenges due to varying government budget timeframes and priorities. This has strained relationships between universities and state governments and could be improved through development and implementation of an NCRIS funding framework, with agreed co-contributions. Quantum of funding UQ recommends the Department give serious consideration to increasing the quantum of funding available to support NCRIS activities. Australia must increase its sovereign capability in research, and to do this we require a foundational investment in RI. The establishment of state-of-the-art technology/infrastructure across all disciplines, and especially rapidly developing ones such as AI and Quantum, requires financial uplift at a programmatic level. For example, NCRIS projects that may support Quantum research include: the ANFF, Heavy Ion Accelerators, Microscopy Australia, and the Pawsey Supercomputing Research Centre. Given the scale, timelines introduced by the National Quantum Strategy, and the large-scale cross-disciplinary and cross-sectoral collaboration advocated for by the Strategy, this discipline alone requires substantial uplift in investment to meet sovereign needs.

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.

Mechanisms to support new activities The five-year timescales of each iteration of the NRI Roadmap do not always allow for responsiveness when considering emergent NCRIS activities that may best serve the national interest. Under the current model, the same list of projects have acquired recurrent funding, which has been a necessary mechanism to provide ongoing support to the vital RI that has been established under the NRI initiative. However, there is a gap when it comes to new research infrastructure needs and opportunities, particularly those that cannot be meaningfully linked to an existing NCRIS project. What is the pathway through which new NCRIS projects are identified and supported? A case study provided by Professor Joseph Grotowski, Head of UQ's School of Mathematics and Physics, is illustrative. Professor Grotowski references the benefits of the establishment of a national residential mathematics research institute. A nascent form of such an institute exists currently in MATRIX, a research facility currently under the aegis of the University of Melbourne. MATRIX currently fosters world class mathematics research and collaboration which has already had significant impact on the national research priorities, including 'building a secure and resilient nation.' The facility currently serves as an incubator and facilitator for the fields of AI, cybersecurity, space research, quantum research, and forecasting (weather, finance, health and natural disasters). Internationally, there has been growing investment in this style of mathematics research infrastructure, such as in the United States, China, the UK and Japan. MATRIX has previously received an ARC LIEF grant and also receives US-based funding along with contributions from other higher education providers. It has the potential for immediate establishment as an NCRIS project and scale up of service delivery. Specific research infrastructure funding relating to a mathematics research institute has been out-of-scope for past NRI Roadmaps as this facility does not align with existing NCRIS projects. UQ would welcome a move to open new pathways to establishment of NCRIS projects under the 2026 NRI Roadmap.

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.

Access To strengthen and the NCRIS program model, UQ strongly supports the introduction of a mechanism that allows for an integrated coordination of, and access to, cross-facility project workflows. An immediate opportunity exists through the Research Infrastructure Connected initiative. This has successfully facilitated researchers access to tools and experts. A scoping study to scale-up that initiative across all NCRIS projects should be considered. The impact of NRI investment can be limited by travel costs and other barriers preventing researchers from accessing key facilities. There is limited virtue in having cutting-edge infrastructure if it is not equitably accessible by all researchers who may need it. The next Roadmap should introduce mechanisms which mitigate this risk, including support for domestic travel for researchers. An example of how this might work in practice is found in the Australian Nuclear Science and Technology Organisation's Synchrotron travel/accommodation funding scheme. UQ encourages the Department to give consideration to facility access support. Supporting translational outcomes and industry involvement The 2021 Roadmap outlined the importance of research impact and translation (Recommendation 6/Section 5.8 and Section 6.3). The recently announced Translational Research Infrastructure (TRI) step-change survey reinforces this. UQ supports TRI themes identified, particularly industry engagement with research infrastructure (Theme 2). We must support industry to have access to, and invest in, our national research infrastructure. Historically, Australia has struggled to develop university-industry research collaborations. As recently as 2023, the OECD ranked Australia last amongst its members for research collaborations with SMEs and large businesses. Research infrastructure provides a key opportunity to help drive industry engagement with universities, offering a unique set of capabilities unlikely to be matched in the private sector. High-end equipment and technology, aligned with an expert workforce to capitalise on it, provides industry with a tangible example of what might come to fruition through a research collaboration with a university. Strong university-industry research partnerships centred on infrastructure have precedents, notably the recent US CHIPS Act. In 2022, the Act appropriated US\$52 billion to domestic semiconductor production. Under the Act, leading semiconductor companies would build manufacturing plants, while universities were tasked with training the necessary workforce. Domestically, Therapeutic Innovation Australia's Pipeline Accelerator scheme demonstrates effective industry integration. The voucher-based scheme allows industry, primarily SMEs, to access critical infrastructure needed for medical research across the discovery and translation spectrum. Expanding this program across NCRIS projects would enhance NRI investment impact by further integrating industry into the ecosystem.

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.

