**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**

I lead the quantum program at Archer Materials, developing quantum computing and realtered technologies. Having access to cryogenic infrastructure for testing and ongoing operation of our advanced quantum devices, and the expertise that goes along with them, is vital to our research and development. My company has established access to two university-based cryogenic facilities through the establishment of academic partnerships, which has allowed the recent development of our qubit architecture and readout technologies. However, our access is limited by the availability of the particular equipment, which is in high demand. Within the next 1-2 years, without access to additional cryogenic measurement facilities, and highly trained technicians to assist in the operation, Archer's R&D program will be significantly hindered.

*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

Test and characterisation facilities are needed to support R&D efforts in the field of quantum technologies

*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.

From my understanding, the Federal Government currently supports the Australian National Fabrication Facility (ANFF), useful for the fabrication of for the fabrication, manufacture of test devices and electronic components, as well as Microscopy Australia - for the imaging of devices and samples. However, there is currently no national facility that allows the electrical testing, characterisation and operation of electrical and quantum devices. For these tasks we routinely need to look offshore for facilities to undertake these tasks, which slows down our R&D and is costly. A national testbed which could provide fully equipped laboratories and support staff to assist in cryogenic characterisation of quantum devices would be a significant asset to my industry

*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.

We use ANFF for some of our fabrication

*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
- [x] 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.

*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.