

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

A rapidly growing and pervasive frontier technology is AI and its application across all domains of research. Thus, the abilities to generate accurate meaningful data and to analyse it at scale and speed are critical research infrastructure needs. Quantum computing capability, both in terms of hardware and software, will be crucial. In an increasingly volatile geopolitical environment, "sovereign capability" is essential, as will be our ability to make important contributions to international consortia. There are numerous existing examples. The development of the low radiation Stawell Underground Physics Laboratory (SUPL), currently the only one of its kind in the southern hemisphere, has facilitated collaboration with UK, European and US scientists in groundbreaking, particle physics research.

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

Across all the research priorities the generation and analysis of accurate, valid and meaningful data are critical for future research and innovation. The 2016 National Research Infrastructure Capability Issues Paper identified precision measurement as an emerging research infrastructure priority, noting "Advanced physics methods have long underpinned measurement capabilities employed in other areas. This continues to be true with quantum enabled technologies." SUPL is a new, world-class facility located 1 km under solid rock in the Stawell Gold Mines, Stawell Victoria (www.supl.org.au). It was established to support leading edge and "breakthrough" research that requires an ultra-low background radiation environment. The foundation dark matter experiment (www.sabre-experiment.org.au) has commenced installation and a cryogenic fridge to support quantum and other experimental approaches will be installed later this year. SUPL provides a unique opportunity for research in particle physics; quantum technologies; radiation detection and sensing; national defence as it relates to monitoring of nuclear materials relevant for anti-proliferation treaties, submarines and energy generation; novel sensing technologies in earth and geosciences related to mining; and life sciences research with a focus on radiation biology and medicine.

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.

We believe that the research communities dependent of precision measurement in an ultra-low radiation environment would benefit from SUPL being designated as an NRI capability with associated funding. SUPL was established with capital funding from the Federal and Victorian governments and the University of Melbourne, with generous support from Stawell Gold Mines. The initial capital investment and construction of SUPL has been completed. It is structured as a company limited by guarantee, with foundation operational funding coming from member (Adelaide University, ANSTO, ANU, Swinburne, University of Sydney and University of Melbourne) subscriptions and research user and access fees. The current arrangements are due to expire end 2026, with considerable uncertainty over whether all members will continue. Designation of SUPL as an NRI capability of national significance and associated funding over the next five years would provide certainty for this critical infrastructure and enable a greater proportion of research funding to be directed to experimental activities. It is worth noting that UK's Boulby Underground Laboratory is funded by the UK Government through its Science and Technology Facilities Council and Canada's SNOLAB, a deep underground science laboratory, receives the bulk of its funding from the Canadian Government.

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:

- ☐ I did not know about it
- ☐ Other facilities suit my needs better
- ☐ I would like to, but cannot get access due to geographical location
- ☐ I would like to, but believed that access was only available to academic researchers
- ☐ I am not aware of any capability that meets my needs
- ☒ Other (please specify)

We are a relatively new facility but keen to explore potential industry links. An initial conversation has been had with researchers that engage with leading mining companies on the development and validation of novel detection and sensing technologies within an ultra-low radiation, underground facility.

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.

The purpose of SUPL is to provide a scientifically controlled and managed ultra-low radiation laboratory environment for precision measurement. We envisage SUPL operating as a national facility that would be available for researchers in various domains to take advantage of its unique characteristics. As has been achieved for sister facilities in the UK and Canada, core operational Government support would provide future certainty for this unique facility and contribute significantly to future, internationally competitive research and innovation for national benefit.