

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

Weather and climate predictions are used by almost everyone and certainly all sectors of the economy in planning and decision making. Their role will further increase in a NetZero economy as the main resource to produce electricity will be the weather. Despite this fact, there is little recognition that these predictions are the result of complex software of representing all components of weather and climate based on physical laws, executed on the fastest supercomputers available producing data sets similar and often exceeding those produced by large observing systems. As a result, the much required improvement of the predictions relies heavily on research infrastructure that combines supercomputing, big data, research software and people in a single highly integrated research system. There is no currently national strategy for HPCD In Australia that aims at providing a fundamentally collaborative compute and data environment. This affects all areas of research and its downstream applications to critical societal issues, such as climate change, energy, water, food, environment and regional security. With the rise of the use of machine learning and artificial intelligence (ML/AI) in an ever-increasing number of fields, the situation is worsening rapidly. The burgeoning scale to which the technology has evolved means that leaving the planning and funding of our peak facilities to when they reach their end-of-life is no longer a viable way to provide a competitive HPCD infrastructure for Australia. Furthermore, the available investment in high performance computing infrastructure for research via the National Collaborative Research Infrastructure Strategy (NCRIS) alone has become insufficient to meet the evolving national and international aspirations for peak HPCD facilities capable of meeting our research and societal needs in the coming decades. This requires rethinking in the new roadmap on how NCRIS can partner with other government departments to build an HPCD-software-people infrastructure that can compete with the rest of the world and provide Australian researchers a cutting edge. Knowledge of the future weather and climate conditions in Australia is critical for all. It will be produced by climate models of higher resolution - and hence higher precision - with more and more components of the system included - and hence more useful information - in a complex software and hardware environment that increasingly includes AI/ML approaches. We are currently not ready to progress these issues at the speed required. Only an integration of compute and data hardware (NCI/PAWSEY) with big data and software (ACCESS NRI) supported by a specialist workforce at a scale beyond NCRIS alone will deliver the research we need to provide crucial information to decision makers.

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

The transition to net zero relies on knowing the future of our weather. This in turn requires a paradigm shift in our ability to model the climate. See my previous comments. The issue is urgent, as only a rapid transition to net zero will avoid the worst impacts of climate change.

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

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.

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.

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.