

Please note: the substantive content of the 2026NRI 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.

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.

The Melbourne Data Analytics Platform (MDAP) at the University of Melbourne comprises more than 20 academic specialists drawn from across the academic spectrum, including the humanities, sciences, education and medicine. We have worked collaboratively with more than hundred researchers across a similarly diverse range of backgrounds. While we do not have a singular focus on any one of the key challenge areas, we are well placed to provide feedback on common capabilities and requirements which underpin them all. Our recommendations focus on three critical and interconnected areas: workforce development, AI infrastructure, and data storage capabilities. These elements form the foundation of a robust and competitive national research infrastructure. By addressing these areas in tandem, Australia can create a strategic and synergistic approach to research that maximises the impact of investments and positions the country at the forefront of global innovation. The interdependence of a skilled workforce, advanced AI capabilities, and sufficient data storage underscores the need for a coordinated and holistic approach to NRI development. This integrated strategy is essential to ensure that Australian research entities are not only globally competitive but also able to tackle complex, data-intensive challenges across all research.

1. Workforce The growth and upskilling of a highly qualified workforce are necessary conditions for advancing cutting-edge research in Australia. Coordination and collaboration between different institutions is key to maximise investments marked for the development and sustainability of a skilled national workforce. We propose the creation of a dedicated national body (i.e., a peak body) that could work in parallel with and / or integrate relevant organisations already acting in this space. Challenges and opportunities are common throughout the sector, but solutions are usually developed in isolation, in-house. A peak body would reduce duplication of efforts, inefficiencies and unnecessary waste of energy and resources. MDAP advocated for the creation of a National Digital Research Infrastructure Workforce Coordination Group. This could be easily extended to the non-digital component of NRI. Setting up such a workforce coordination group is a relatively modest investment that will greatly benefit the sector and uplift the quality of Australia's research.

2. AI Recently we have seen an acceleration in the uptake of increasingly more powerful and sophisticated Artificial Intelligence and Machine Learning (AI/ML) models. This creates new opportunities and avenues for research in virtually all domains. For research in Australia to remain internationally competitive, it is essential to boost the national compute and software capability for AI/ML (in parallel to the skilled workforce mentioned above). This has been recognised in the "National Digital Research Infrastructure (NDRI) Investment Plan: Recommendations for Investment by the NDRI Working Group". We recommend to 1) increase the proposed allocation of \$45 million to \$100 million; 2) identify high-priority areas such as Large Language Models (LLM) infrastructure; 3) allocate part of the funding to the development of appropriate standards, codes-of-conduct, ethical requirements, etc. for the responsible use of AI in research.

3. Data Storage Increasingly, data storage availability is becoming a bottleneck for cutting edge research across domains. The development of AI models typically requires huge amounts of data to train. Whilst some research areas, such as genomics and astronomy, have long battled with processing and storage of large volumes of data, the ubiquitous uptake of AI has seen data requirements soar in many other fields. Raw data storage availability is only a small part of the problem though. The compute infrastructure (i.e. processing GPUs and servers) where the data is to be processed must also have enough storage capacity to temporarily house it and any subsidiary products. Open and reproducible research practices further demand that as much data as possible be retained and made openly accessible to other researchers in the future. We recommend that all new computing infrastructure developments place a strong emphasis on ensuring new compute capabilities are coupled with suitable medium and long-term data storage solutions for all researchers.

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.