

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

An area that seems to be missing from this list is research regarding applications of Artificial Intelligence to many facets of Australian life. As research becomes increasingly data-intensive, the demand for research software engineers who can handle petabyte-scale data challenges by streamlining, porting codes to GPUs, and scaling data workflows will continue to grow. These specialist skills are highly valued by industry and without sufficient incentives and long-term strategic funding, the research sector risks losing such specialists to industry. Greater interest in data sharing arrangements potentially at a national, industry or value-chain level, along with concerns over privacy, ownership, rights to use, data sovereignty, and indigenous rights. Future policies will need to account for the true total cost of research, ensuring that data-generating instruments are integrated into cohesive Research Data Management platforms. Without this shift, inefficiencies will persist, making it harder for projects to achieve their targets.

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

A national cross-domain research software capability is a critical piece of research infrastructure that is currently missing. Such an organisation would advocate at a policy level, and provide services to researchers and other NCRIS capabilities to scale their data-intensive workflows. Currently many organisations nationally, at a university level, and at a research institute level are re-inventing the wheel around research software due to a lack of communication, awareness, and funding. Duplication of effort reduces the ability to create efficient and effective software Solutions that will handle the size of data intensive research workflows in the future. Existing entities like Intersect, QCIF, BioCommons, and ADACS either focus on specific domains, operate at a state level, or are tied to particular institutions. While there are examples of research software capabilities at various levels (e.g., ACCESS-NRI for climate research nationally, MDAP that is cross-domain at the University of Melbourne, and RCP at WEHI that is for biomedical researchers), there is no unified, national organisation dedicated to research software across all domains. Another major gap in the current National Research Infrastructure is the lack of support for maintenance of critical research software tools. The lack of a pathway for sustainable research software development has substantially hindered Australian researchers' capabilities in this field and results in important development work being abandoned once short-term funding runs out. At a policy level many instruments are being purchased without calculating the true total cost of research including setting up these data intensive generating instruments to a cohesive Research Data Management platform. This increases inefficiencies and causes projects to be less likely to meet their targets.

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.

There is a need for a national research software capability that: - operates across all research domains, drawing inspiration from the UK's Software Sustainability Institute or the US's Chan-Zuckerberg Initiative Essential Open-Source for Science program (CZI-EOSS) - provides shared infrastructure, frameworks, and utility libraries to support research software development. - offers policy advocacy, training, advice, and capability-building at a national level. - ensures sustainability and governance beyond individual institutions or short-term grants. - where appropriate, directly support the maintenance and sustainable development of critical pieces of existing, mature research software, where individual institutions or short term grants fail to meet the community's needs Medium-term goals would include: - providing trusted advice/consultancy/knowledge sharing to all key NCRIS facilities - providing a capability-building program for researchers across domains and researchers in multidisciplinary projects - this is modelled on the success of ADACS, MDAP, and RCP in their capability-building programs - providing training across domains for researchers to improve their digital skills such as programming, problem-solving, and choosing software/information system architectures. providing national advice through online drop-in sessions to bridge the gap between introductory tutorials and the ability to write and maintain sustainable research software. - providing the service and capabilities of a national Open Source Program Office (OSPO) That will include but not be limited to the feedback of legal compliance issues and risk management of open source research software. - foster a collaborative community connecting researchers who code with software engineers in research, facilitating the exchange of ideas and best practices. - develop a scheme to identify and support critical pieces of open-source research software. Such a scheme should focus on sustainable development practices for existing, well-established research software and should include but not be limited to bug fixes, improving software engineering processes such as automated testing, improving documentation, or community management. The scheme could be modelled after successful approaches from the private sector and philanthropic organisations, such as CZI-EOSS or Google's Summer of Code program

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.