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

The previous NCRIS Roadmap was somewhat deficient in recognising the criticality of this sector given its substantive contribution to Australia's economy- the export earnings (ag with approx $80B, with a target of $100B by 2030; largely export driven) & food worth another $200B & the single largest employer in the manufacturing sector (approx 500,000 employees). Covid also exposed food as a strategic national security threat with only 5 days of fresh food & 24 days of non-perishable foods on supermarket shelves (FOOD FIGHT: CLIMATE CHANGE, FOOD CRISES & REGIONAL INSECURITY Published June 2022 by Australian Security Leaders Climate Group, PO Box 3107, Manuka, ACT, 2603 [redacted]). Together with the PMs "Manufacture in Australia" & the industry departments "Strategic Examination of Australia's R&D system" & the recent Food & Beverage enquiry there is an urgent need for NCRIS to invest in critical infrastructure that will enable value-add to Australia's agricultural exports (need to move away from a commodity industry to remain competitive) & assist SMEs in the food sector to remain competitive through access to innovative food processing technologies. This will require continued investment in the biomolecular sciences (BPA is a shining example of success in this domain), APPN (plant phenomics), bioimaging & computational & bioinformatic infrastructure. New investment is required in pre-pilot bench scale food processing/recovery/repurposing of food wastes to enable Australia's food processing industries (largely SMEs) to evaluate modern technologies that enable the delivery of nutritious food products in a competitive environment. BPA has begun a SynBio initiative that addresses this from a fermentation perspective, but considerably more investment is required in complementary technologies capable of evaluating processing of raw materials produced by conventional agricultural commodities. This includes considerable manufacturing aspects, incorporating environmentally friendly packaging & digital

Q23.
Medical Products

Q24.
Defence

Q25.
Recycling and Clean Energy

Q26.
Space

Q27.
Environment and Climate

Q28.

Frontier Technologies and Modern Manufacturing

A key mission of NCRIS from its inception has been to provide access to cutting-edge technologies to the Australian research community & industry- this remains as crucial today as it was in the early 2000's when NCRIS was implemented! See also commentary above in "Food & Beverage" section, one of critical manufacturing sectors that has been largely ignored in the NCRIS Roadmaps to date

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

A) Sustainable agricultural production is crucial to - minimising its environmental impact (ag uses 75% of the earths water & produces 25% GHG emissions) - maintaining the quality of Australia's fragile soils - delivery of climate- resilient crops to maintain our international competitiveness B)

Q31.

Supporting healthy and thriving communities

"What we eat is who we are"- quality nutritious foods are now seen as vital to maintaining the health & wellness of our population. While agriculture generates approx. $80B in export earnings the impacts of non-communicable food-related diseases (eg obesity/Type 11 diabetes/colorectal cancers/etc) on our health budget is approx. the same & is the fastest growing impost on our health budgets. Therefore, from a consumer health perspective agri-food production needs to transition from a commodity/yield-based model to one where nutritional quality is the primary driver

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Q33.

Protecting and restoring Australia’s environment

sustainable agricultural practices, underpinned by innovation through plant breeding, improved agronomic practices etc is vital to the competitiveness of the ag sector

Q34.

Building a secure and resilient nation

sustainable agricultural practices are vital to the resilience & well-being of our regional communities.

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.

I have provided these in previous sections. The need to maintain & enhance existing investments in the biotechnology-related investments- eg. molecular biosciences/imaging/computational infrastructure remains a priority. New investments in food technology/innovation at the pre-pilot/bench scale is vital to maintaining the competitiveness of the food & beverage industries, and importantly to value-add to Australia's agricultural sector by both value-adding to a commodity-based sector & also to improving the health & well-being of our population!

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.

BPA/APPN/Bioimaging/Aust Biocommons/Computational infrastructure

Q39.

3.3 Please indicate your (one or more) primary reasons for interacting with NRI:

- [x] For expertise or advice
- [x] Access to research resources or products
- [x] Access to equipment for research
- [ ] Access to equipment for operational reasons
- [ ] Help in translating research
- [x] Access to data
- [ ] Support for clinical trials
- [x] Other (please specify) as a node of NCRIS platforms

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.

NCRIS is a "national treasure" that is now utilised by the broad research provider community & industry & has added significant value to Australia's global reputation, competitiveness & enabled access to international resources (eg. EMBL) that would otherwise by hard to access on an individual basis

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.