

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

We have a lot of minerals from which we can extract metals. I think we should position ourself not only as an exporter but also a manufacturer of raw materials for example metallic powders, area of interest with the development of additive manufacturing.

Q22.

Food and Beverage

Q23.

Medical Products

Additive manufacturing is offering capability to manufacturing customised devices that would be beneficial for the patients by insuring a better "fitting" and limit the need to failure of the device if it is better adapted to the body. Additive manufacturing has also a role to play in the development of technology for tissue engineering and organ fabrication.

Q24.

Defence

In the current political climate it seems essential that Australia builds a sovereign defence manufacturing capability. Advanced manufacturing is mean to build this capability as there are now possibility to build fast and large components and to develop new materials with better performance.

Q25.

Recycling and Clean Energy

It is important to promote a circular economy approach in manufacturing and to see what different waste materials can be used for in a second, third, etc. lives. There is a need to support the development of new manufacturing technologies than can help the usage of waste material but also to understant how many times a material can be recycled while keeping its performance. There are also some manufacutring technologies, such as the additive manufacturing technilogies, that are producing less waste during the manufacturing process. Investigating these technologies and see how to incorporate them in the manufacturing industry is essential.

Q26.

Space

Using new manufacturing technologies and advanced materials we can insure the production of more performing and lighter space component. The area of manufacturing in space is also something to develop such as tools could be fabricating in space to support team there.

Q27.

Environment and Climate

Q28.

Frontier Technologies and Modern Manufacturing

There is a lot of work in advanced manufacturing that can be done to insure better process with less waste, using less energy and incorporating in-situ monitoring systems to detect defects and in the future even correct them, decreasing once again waste but also ensuring performance.

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

We will need to transform the manufacturing industry if we want to achieve a net zero future, advanced manufacturing technologies and materials need to be investigated at a large scale with an national effort to support this research.

Q31.

Supporting healthy and thriving communities

Additive manufacturing will support the manufacturing of personalised prosthetics, orthotics and other medical devices which will be beneficial to patients. Additive manufacturing can also support response to crisis as we have seen during COVID with mask and respiratory system production.

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Q33.

Protecting and restoring Australia's environment

By promoting a sustainable and circular manufacturing framework, we will be protecting the environment (waste reduction, less energy, better use of resources). Other areas where manufacturing can help for example concerns artificial reefs and marine restoration using 3D printing.

Q34.

Building a secure and resilient nation

Advanced manufacturing will enable the strengthening of the national defence industry. By looking at the entire workflow in manufacturing from the feedstock material manufacturing to the component manufacturing we will secure the supply chains in Australia and make the country economically resilient.

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.

1. Vision and Rationale The Australian Additive Manufacturing Research Hub (AAMRH) will establish a nationally coordinated, multi-institutional research infrastructure that supports cutting-edge additive manufacturing (AM) research across metals, ceramics, and polymers, covering the entire AM workflow from design, feedstock, manufacturing, heat treatment, surface finishing, machining. AM is revolutionising the manufacturing industry in the fields of aerospace, biomedical, defence, oil and gas, new energy tech and mining, and Australia must develop world-class research capabilities to remain at the forefront of innovation. The National Collaborative Research Infrastructure Strategy (NCRIS) provides an ideal funding framework to support the salaries of highly skilled technical staff required to operate and maintain advanced AM platforms. Furthermore, universities face increasing challenges in funding the capital-intensive equipment and consumables that underpin AM, making an NCRIS-supported network particularly attractive. 2. Strategic Objectives • Establish a nationally distributed network of AM facilities, enabling universities to develop areas of specialisation while maintaining a coordinated approach. • Provide researchers and industry partners with access to cutting-edge AM equipment, digital workflows, and advanced characterisation tools. • Support training, skills development, and workforce pipelines to advance Australia's AM expertise. • Foster cross-institutional and international collaborations, leveraging shared infrastructure and expertise. • Strengthen industry engagement to facilitate technology translation and commercialisation. 3. Benefits A National AM Research Hub would strengthen Australia's manufacturing independence, economic resilience, and global leadership in advanced technology. It would drive innovation, job creation, and sustainability, ensuring Australia is at the forefront of the next industrial revolution. It would accelerate AM research & development by facilitating collaboration between universities, industry, and government and supporting cutting-edge research in sustainable materials. It will allow the education and training of Future Engineers & Scientists and boosting Australia's global competitiveness. 4. Time frame Many universities have already build some laboratories in the area of advanced manufacturing and therefore there is already some capability that will enable the creation of such capability. This is a long term capability and we will need to adapt with time as progress is made in technology. We need to focus our efforts to support the Australian manufacturing industry. This new NCRIS could be put in place in less than a year given the teams already in place in Australia and their desire to work together to make a difference.

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) interacted 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.

Microscopy Australia and ANFF

Q39.

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

- ☒ For expertise or advice
- ☐ Access to research resources or products
- ☒ Access to equipment for research
- ☐ Access to equipment for operational reasons
- ☐ Help in translating research
- ☐ Access to data
- ☐ Support for clinical trials
- ☐ Other (please specify)

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.

I am very interested in seeing a new NCRIS in advanced manufacturing (which is different from what ANFF is doing). We will be able to contribute to many sectors, support our manufacturing industry and train the next generation of engineers, technical staff and leaders in this area. Many countries are working in this area already but I think Australia is perfectly positioned given the natural resources, access to new energy forms and the drive of its researchers.

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.