

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

In mines above and below ground where GNSS is unreliable, inertial navigation systems (INS) enable vehicles and machinery to operate with higher levels of autonomy and efficiency. Our suite of cutting-edge INS solutions provide precise positioning and orientation, enabling operators to run autonomous machinery remotely and with minimal human intervention. These systems can be easily retrofitted and integrated onto existing vehicles, eliminating the cost of new fleet purchases or upgrades.

Q22.

Food and Beverage

Q23.
Medical Products

Q24.
Defence

Advanced Navigation delivers Assured Positioning, Navigation and Timing (APNT) in the world's most demanding environments — from battlefield autonomy in GNSS-denied conditions to subsea intelligence and space launch resilience. Trusted by defense giants like Hanwha and Rheinmetall, backed by KKR and In-Q-Tel, and supported by the Department of Defence, our vertically integrated photonics and strategic-grade FOG INS systems are enabling next-gen defense platforms across land, sea, air and space.

Q25.
Recycling and Clean Energy

Q26.
Space

In space, where GNSS doesn't reach, Advanced Navigation delivers the inertial and laser-based systems needed for mission-critical autonomy. From orbit servicing with Boreas X90 to soft lunar landings with LUNA, our space-grade technologies enable precision positioning, velocity, and navigation in the harshest off-world environments. These innovations are already propelling Artemis missions, satellite servicing, and deep space exploration — with real-world applications returning to Earth in aviation, autonomous vehicles, and beyond.

Q27.
Environment and Climate

Q28.

Frontier Technologies and Modern Manufacturing

Advanced Navigation is at the forefront of frontier technologies, combining deep tech innovation with sovereign, modern manufacturing. From quantum sensors and AI to robotics and photonics, we design and build world-first navigation systems entirely in-house — right here in Australia. Our vertically integrated facilities, like the new robotics manufacturing hub at UTS Tech Lab, enable us to rapidly prototype, scale, and export advanced solutions across defence, space, marine, and autonomous systems. It's not just innovation — it's Australian-made ingenuity shaping global industries.

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

Emerging research in autonomous systems, remote sensing, and high-efficiency navigation technologies is essential to support decarbonisation efforts across transport, energy, and resource sectors.

Q31.

Supporting healthy and thriving communities

Next-generation navigation and sensing technologies play a growing role in medical logistics (e.g., drones for organ transport), disaster response, and infrastructure resilience. Research is advancing in AI-assisted autonomy, terrain-aware drones, and smart mobility for aged care and emergency services.

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Q33.

Protecting and restoring Australia’s environment

Environmental monitoring is undergoing a revolution through micro-autonomous vehicles, subsea sensors, and AI-powered analysis. Platforms like Hydrus AUV enable low-impact, high-precision environmental scanning. Future research will depend on ultra-compact, long-endurance sensing technologies to monitor ecosystems at scale — from coral reefs to bushfire-prone forests. Yet current environmental infrastructure remains fragmented, with a lack of continuous, high-resolution data streams and autonomous sensor networks capable of real-time response.

Q34.

Building a secure and resilient nation

Assured Positioning, Navigation, and Timing (APNT) technologies are critical to national resilience in an era defined by electronic warfare, cyber threats, and climate-induced disruptions. As an Australian sovereign manufacturer, Advanced Navigation is leading the charge with locally designed and produced inertial navigation systems — such as the Boreas and LUNA — which operate independently of GNSS and provide assured navigation across defence, emergency response, and space domains. These systems are already supporting autonomous military vehicles, lunar landing missions, and secure maritime operations. However, to meet the growing demand for sovereign, defence-ready technologies, Australia must invest in large-scale manufacturing infrastructure for quantum sensors, photonics, and AI-integrated navigation systems. This includes GNSS-denied simulation facilities, secure chip production lines, and integrated test environments across land, sea, air, and space. Existing infrastructure centred on legacy communications and foreign-sourced technologies will not suffice. To ensure Australia's security and technological independence, national research infrastructure must align with the urgent need for sovereign, scalable, and defence-grade innovation.

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.

Australia's space industry is a close-knit and rapidly evolving ecosystem. At Advanced Navigation, we believe that collaboration between industry, academia, and government will be the defining factor in ensuring the long-term success and global competitiveness of our sector. Supporting each other —through shared infrastructure, expertise, and innovation pipelines—will be essential to unlocking commercially viable outcomes and strengthening local manufacturing. Advanced Navigation is at the forefront of Australia's space technology landscape. Our inertial navigation systems and advanced sensors are used in space missions globally, and we are deeply invested in building sovereign capabilities here at home. We have directly benefited from access to space qualification infrastructure, including facilities within the National Space Qualification Network (NSQN), such as the National Space Test Facility (NSTF) and ANSTO. These capabilities are critical in ensuring that high-performance space hardware can be qualified locally, quickly, and cost-effectively. We fully support the inclusion and continued investment in NSQN as part of the 2026 NRI Roadmap. Strengthening this network will ensure Australian innovations don't face delays or additional costs due to offshore qualification, helping our industry stay globally competitive while supporting domestic supply chains and advanced manufacturing. We encourage the Roadmap team to continue prioritising initiatives that enable strong collaboration between research institutions and commercial partners, and to ensure these capabilities are maintained and upgraded to meet the needs of future space missions.

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.

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.

See signed NRI attached.

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.

[2026-NRI-roadmap-survey-preview SIGNED.pdf.pdf](#)

660KB

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