ACDS Submission:
2026 NRI Roadmap Issues Paper

Introduction

The Australian Council of Deans of Science (ACDS) welcomes the opportunity to contribute to the development of the 2026 National Research Infrastructure (NRI) Roadmap. Science faculties (or equivalent) across Australia are major users, hosts, and contributors to national research infrastructure, and the NRI system is integral to research excellence, workforce development, collaboration, and translation across the entire research and innovation ecosystem.

The following responses to questions raised in the Issues Paper draw on the collective expertise of science leaders from ACDS member institutions.

Responses to Issues Paper Questions[1]

Q1. Should the proposed definition of NRI be modified?

ACDS considers the proposed definition broadly appropriate but believes it requires further clarity.

Key points:

- "National significance" should be defined by scale, uniqueness, researcher demand and the inefficiency of duplication.
- The definition should explicitly include single site, distributed, virtual, and digital forms of NRI.
- ACDS urges stronger emphasis on equitable (as distinct from equal) access, ensuring that regional and smaller institutions can meaningfully participate.
- NRI must support both long-term foundational research and strategic national priorities.
- The explicit inclusion of skilled personnel is welcome and should remain.
- Some research infrastructure is of global significance in the sense that Australia as a nation is uniquely placed to host the infrastructure by virtue of Australia's unique location, continental scale, and diversity of local environments. We have a global responsibility alongside national priorities, particularly as our own researchers are often required to visit overseas facilities to access infrastructure and associated expertise necessary to progress Australian research.

Q2. What principles should guide culturally safe and self-determined NRI investment for First Nations knowledge and data?

We support embedding Aboriginal and Torres Strait Islander communities' leadership and co-design as core principles for any NRI activity involving Indigenous knowledge or data. Guiding principles should include:

- Governance models co-designed with First Nations peoples.

[1] The questions in this document used to frame our responses are abbreviated; the full wording appears in the Issues Paper at 2026 NRI Roadmap Issues Paper - Department of Education, Australian Government.

- Decisions fully aligned with Indigenous Data Sovereignty principles.
- Long-term investment in relationships and culturally safe engagement, recognising that building and maintaining trust requires time and resourcing.
- In addition, we note that the Issues Paper uses the terms "Aboriginal and Torres Strait Islander" and "Indigenous", while other recent documents increasingly refer to "First Nations" communities. For consistency with the Issues Paper, ACDS has used the term "Aboriginal and Torres Strait Islander" in this submission. We suggest that the terminology ultimately adopted should be determined by Aboriginal and Torres Strait Islander peoples, and that—once agreed—it should be applied consistently across future documents.

Q3. How should the roadmap balance a First Nations Data Commons with broader uplift across NRI?

A balanced, dual approach is essential. Key considerations include:

- A dedicated First Nations Data Commons:
  - A secure, sovereign, culturally governed platform.
  - A nationally consistent approach to culturally safe Indigenous data management.
- System-wide uplift:
  - All NRI facilities should embed culturally safe protocols and First Nations governance principles.
  - ACDS urges a nationally coordinated framework to avoid duplication and reduce burdens on Indigenous experts.

Q4. What are the top three priorities for NRI investment to support the humanities?

While not the focus of the ACDS, we understand that priorities that would strengthen humanities research capabilities include:

- Large-dataset capability, particularly for non-traditional data (oral records, Traditional Knowledges, ephemera, multilingual, creative, etc)
- Skills capability for traditionally-trained scholars in the humanities
- Interface between humanities/arts data and Generative AI.
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Q5. What emerging humanities research areas will require NRI investment over the next 3–5 years?

We understand that emerging priority areas for HASS researchers include:

- The impacts and opportunities associated with Generative AI
- Ethics around new technologies
- Climate change and net zero
- Regional and national security
- Changing geo-political dynamics
- Social cohesion and equity
- Research translation and interdisciplinary thinking
- Future of democracy
- Economic growth and sustainability
- Population wellbeing

- Developing urban, regional and rural pipelines for education and training
- Incorporating First Nations knowledges
- Languages and cultural competencies.

HASS colleagues emphasise that many of these issues are centred on HASS questions. Addressing them requires meaningful investment in interdisciplinary research.

Q6. Should the humanities research infrastructure workforce include specialist roles, generalist roles, or a mix?

ACDS considers a mixed model the most sustainable.

- A generalist workforce provides flexibility and broad capability.
- Specialist roles remain essential for deep domain expertise.
- Our view is that this hybrid approach will best serve national capability.

Q7. What skills and capabilities does the NRI workforce need regardless of technical background?

Critical cross-cutting skills include:

- Data literacy and data management
- Statistical and analytical capability
- Software and programming skills
- Teamwork, collaboration, and communication

These skills underpin effective operation across the NRI system.

Q8. What is the best approach for retaining and expanding NRI workforce capability?

ACDS urges a combination of structural and cultural strategies including:

- Opportunities for NRI staff to move across universities, NRI facilities, and industry to facilitate continuing education and exchange of skills. This might also include training at relevant international facilities, to ensure that Australia's NRI workforce has a clear overview of new cutting-edge instrumentation and techniques
- Longer-term funding cycles to support workforce stability.
- Sustained investment in university infrastructure, recognising its critical role in training the next generation of NRI users. Without this investment, there is a real risk of unintended negative consequences for Australia's research training pipeline.
- Better recognition and progression for hybrid academic–professional roles.
- PhD internships and early-career placements within NRI facilities and relevant international facilities.
- Technical personnel with expertise in developing and maintaining bespoke equipment.

Q9. What would make NRI capabilities more visible, accessible and usable for industry (especially SMEs)?

ACDS urges the establishment of a:

- National "Front Door" for Industry
- A coordinated access pathway that:
    - Provides a single point of entry
    - Matches industry needs to NRI capabilities
    - Reduces administrative burden
    - Supports SMEs in navigating complex national systems

Improved national storytelling and communication about NRI capabilities would further enhance industry engagement.

Q10. What support would assist NRI facilities to strengthen research–industry collaboration?

Key mechanisms include:

- Standardised national approaches to costing, contracting, IP sharing/ownership and licensing, and data governance.
- Capability brokers within NRI facilities to scope industry needs and connect partners.
- Mobility and placement programs, including PhD internships (including at international facilities, where relevant).
- Closer alignment with university-based training to develop translational capability.

Q11. What enhancements to existing or new NRI would improve research translation?

Important enhancements include:

- Strengthened national data and AI infrastructure.
- Clearer visibility and discovery tools for industry, together with relevant training opportunities for industry-based practitioners.
- More consistent translation pathways across facilities.
- Continued investment in university-level infrastructure to ensure people can develop skills and experience locally and compete effectively at the national level. Such investment also supports workforce development and retention.

Q12. How should translation be planned for in the development of new NRI?

Translation should be embedded from the outset. Essential components include:

- Clear industry access pathways built into governance and operations.
- Transparent costing and engagement models.
- Embedded mobility programs for students and staff.
- Coordination with university training pathways to maintain capability pipelines.

Translation readiness should be a core design requirement, not an add-on.

Q13. Which three capabilities should be included in the 2026 NRI Roadmap and why?

ACDS recommends the following national priorities:

1. National Data and AI Infrastructure Uplift – repositories, compute, enhanced network connectivity, governance, and sovereign AI models.
2. Distributed Longitudinal Environmental Observation Network – leveraging Australia's continental scale for climate, environmental and ecological monitoring.
3. National Front Door for Industry Engagement – a unified navigation and triage mechanism for SMEs and industry partners.

Q14. Is there any capability not listed that should be considered?

Given the importance of communication in persuading industry and the broader, non-research community of the critical value of national research infrastructure, we suggest that infrastructure to support National Science Storytelling would add significant benefit. Such a coordinated national capability for science communication would:

- Strengthen public and political understanding of the NRI system and its intrinsic value in developing our quality of life, health and well-being, and national security
- Enhance industry awareness and uptake
- Provide consistent communication tools across facilities
- Build the social licence required for sustained, long-term investment
- Such a capability would substantially amplify the impact of both existing and future NRI investments.

We are also of the view that either government should increase funding for the NRI system or stop funding for some existing facilities so as to make room for new ones.

Conclusion

Australia's National Research Infrastructure should serve as a unified, strategic foundation supporting every stage of research, from discovery to application. The 2026 NRI Roadmap should focus on three main priorities:

- **Sustaining the Full Research Spectrum:** This means safeguarding basic scientific exploration while establishing clearer, more accessible ways to translate research.
- **Driving Coherence and Equity:** Facilities, especially those handling data and AI need to be coordinated to build a truly national system.
- **Boosting Industry Impact:** Enhancing the visibility and accessibility of NRI for industry, particularly small and medium-sized enterprises, will speed up collaboration and increase national benefits.

By embracing these priorities, the Roadmap will create an NRI system that is strong, inclusive, equitable and equipped to tackle Australia's future challenges.