NCRIS Roadmap survey

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2026 NRI Roadmap Issues Paper Consultation Survey. OAA/CAUL Joint Submission December 2025

Survey Questions 2026:

Aboriginal and Torres Strait Islander knowledge systems:

The following questions refer to Section 2.1 - Aboriginal and Torres Strait Islander knowledge systems in the Issues Paper.

Q2. What should be done, and over what timeframe, to ensure future NRI investments respect cultural protocols, and support self-determination and promote benefit sharing, in line with the Australian Government's Framework for Governance of Indigenous Data?

Thousands of unique research materials are produced every year that are about or produced with Aboriginal and Torres Strait Islander Peoples. These materials - including theses, reports, but also other materials including research data, images, and other works, are made available via institutional and disciplinary repositories hosted at universities. However, as these systems and metadata schema are developed internationally, they lack attention to the access controls and protocols necessary to ensure that access to these outputs is in accordance with community expectations, including the CARE Principles for Indigenous Data Governance. Investment in systems and capabilities is needed to improve access controls, protocols, metadata, and preservation practices. Such investment is also necessary as a pre-requisite to the concept of a sovereign AI approach centred on Australian content.

It is essential to prioritize the development of Indigenous-led metadata standards and culturally aware access controls within these infrastructures. This includes collaborating with Aboriginal and Torres Strait Islander communities to embed the CARE Principles into metadata schemas and access permissions. Capacity-building programs must also be funded to empower Indigenous peoples in governance and stewardship roles, alongside embedding shared open-source infrastructure designed from the outset to integrate Indigenous governance tools. Additionally, establishing Indigenous-led monitoring frameworks and clear evaluation metrics, with annual reporting from the first year, will ensure that cultural protocols, self-determination, and benefit sharing remain central throughout the roadmap cycle.

Q3. How might an appropriate balance be achieved between investment in a dedicated Aboriginal and Torres Strait Islander Peoples Research Data Commons capability, and provision of uplift in capability across relevant discipline and theme-oriented NRI?
Your response should include consideration of possible design approaches for a dedicated capability and/or of mechanisms and incentives for alignment and collaboration across NRI providers.

As noted above research related to or produced with Aboriginal and Torres Strait Islander Peoples is produced and published in numerous research and educational institutions. As a result, there needs to be suitable capabilities across the sector in line with community, disciplinary, and institutional approaches to Indigenous Cultural and Intellectual Property (ICIP), scholarly publishing, research data, and related practices. In turn, strength across the disciplines and institutions will support a dedicated research data commons capability.

The capability could:

- Be developed with Indigenous leadership and incorporate sovereign data governance principles to ensure trust, control, and cultural safety.
- Leadership roles should be embedded across all NRIs. Peak Indigenous organizations (e.g., Indigenous Data Network, Lowitja Institute, AIATSIS) alongside NRI directors and government data leaders are best placed to co-lead the design, standard-setting, and capability building, ensuring collective responsibility and practical implementation across the research infrastructure ecosystem.
- Collaboration and alignment can be driven through joint advisory groups, funding conditions tied to Indigenous data governance milestones and shared national frameworks like the NIAA Governance Framework and CARE principles. ARDC's HASS & Indigenous Research Data Commons (HASS&I RDC), is an example of this model, co-designing with Indigenous communities acting as a bridge between dedicated Indigenous capabilities and broader NRI facilities.
- Provide shared services such as metadata standards, access protocols, and digital preservation that can be adopted sector wide.
- Work as a hub that connects to many other research systems across universities
- Include partnerships and agreements set up with other research infrastructure providers to enhance cooperation
- Be based on interoperable technical standards and financed by coordinated funding incentives that encourage collaboration across themes
- Include capacity-building programs, joint governance arrangements, and shared performance indicators that measure both sector-wide uplift and Indigenous-specific outcomes.

Humanities

Q4. What are the current top 3 priorities for NRI investment for the humanities?

1. **Interoperable Shared Repositories**
   Investing in nationally coordinated, open-access repositories is essential to overcome the current siloing of humanities data across disciplines, geographical regions, cultures, and jurisdictions. Australia's humanities collections are fragmented by differences in standards, governance, and technological platforms, which obstructs interdisciplinary research and limits access for end-users. Creating interoperable repositories would unify these collections

under common metadata standards and governance frameworks, promoting seamless discovery and reuse of diverse cultural and scholarly resources.

Such repositories could support advanced digital tools and AI-driven query capabilities to enhance humanities research, including indexing, cataloguing, and analysis functions. They must be designed as open, networked infrastructures built on public-interest governance principles, enabling multi-sector participation from academic institutions to Indigenous communities. Additionally, these repositories need to provide or interface to compliant compute and storage infrastructure to capture the benefits of institutional, cloud, or HPC resources as required, while remaining capable of securely handling sensitive formats such as audio, video, and culturally significant data, thereby embedding respect for cultural protocols and privacy legislation.

2. Diamond Open Access Journal Infrastructure

Supporting diamond open access (OA) journal infrastructure prioritizes the sustainability and equity of humanities scholarship dissemination. Diamond OA journals are community-governed and free for both readers and authors, eliminating paywalls common in commercial publishing models. This model aligns well with the values and needs of humanities researchers who seek inclusive, no-cost publishing venues.

Investment is needed to strengthen this approach via open-source publishing platforms to underpin these diamond journals, ensuring they have sustainable business and data models. Enhancing digital tools for editorial workflows, indexing, and analytics promotes greater visibility and impact for humanities research outputs. Integration with interoperable shared repositories further extends accessibility and reusability of published materials. Such infrastructure supports diverse forms of scholarly communication relevant to humanities research, including non-traditional outputs like multimedia works or community-engaged scholarship.

3. Secure Infrastructure for Sensitive and Cultural Data

Developing secure, sovereign digital environments such as TREs (Trusted Research Environments) and SREs (Secure Research Environments) built for humanities research is crucial to safeguard sensitive and culturally significant data. Humanities research often involves complex data types—such as audio recordings, video, visual art, and Indigenous knowledge—that require strict compliance with privacy laws and respect for culturally defined governance arrangements.

Infrastructure must offer secure storage and compute environments that enable humanities researchers to work with these data safely, including access to sovereign large language models (LLMs) and generative AI tools tailored to humanities analysis. These secure platforms facilitate participatory governance models where Indigenous communities and other stakeholders retain control and agency over access and use of their cultural materials.

Q5. What new or emerging areas of humanities research will require NRI investment in the next 3-5 years?

Digital Humanities and AI-Enhanced Research:
The increasing use of AI, machine learning, and large language models in humanities research for text analysis, cultural heritage digitisation, and social data interpretation

demands advanced computational infrastructure. NRI investment should support development of open, sovereign AI environments tailored for humanities data, enabling researchers to harness these technologies responsibly and creatively.

Indigenous Knowledge and Cultural Heritage Management:
Growing recognition of Indigenous-led research and cultural protocols necessitates secure, compliant data infrastructure that respects privacy, sovereignty, and participatory governance. Investment is needed in repositories and tools designed specifically for managing multimedia and sensitive Indigenous knowledge aligned with cultural values and legislative requirements.

Interdisciplinary and Cross-Sector Research Integration:
Humanities research increasingly intersects with health, environment, social sciences, and digital technology fields. This calls for interoperable infrastructure capable of bridging diverse data types, standards, and disciplinary practices to support complex, multi-dimensional inquiries.

Sustainable Open Publishing and Scholarly Communication:
As researcher-led diamond open access journal models grow, investment is needed to expand sustainable, community-governed publishing platforms that accommodate diverse humanities outputs, including multimedia and collaborative works.

Q6. Should Australia focus on developing a specialist humanities research infrastructure workforce or a generalist research infrastructure workforce with humanities domain expertise and ability to bridge across disciplines?

Responses expressed in terms of the pros and cons of each approach would be especially useful.

Specialist Humanities Infrastructure Workforce

Pros:

- Deep domain knowledge and cultural literacy essential for understanding humanities research nuances.
- Better equipped to design, manage, and maintain infrastructure tailored specifically to humanities data types (e.g., multimedia, text corpora) and governance requirements.

Cons:

- May risk siloing expertise, limiting flexibility in adapting to cross-disciplinary infrastructure needs or emerging technologies outside traditional humanities areas.
- Potentially narrower career pathways and challenges in scaling workforce numbers due to specialized skill demands.

Generalist Research Infrastructure Workforce with Humanities Expertise

Pros:

- Flexibility to operate across multiple disciplines, supporting integration between humanities, health, social sciences, and digital technology sectors.
- Ability to bridge technical infrastructure expertise (data science, cloud computing, AI) with humanities domain knowledge, facilitating interdisciplinary collaboration and innovation.

Cons:

- Risk of insufficient depth in humanities-specific cultural and ethical understanding, which could impact sensitive data stewardship and community trust.
- Generalist training may overlook specific governance requirements unique to humanities and Indigenous data.

In the context of developing a shared research infrastructure, a combination of specialist humanities infrastructure experts, who bring essential deep knowledge of humanities data and research practices and generalist infrastructure professionals, who offer flexibility and cross-disciplinary technological skills, provides the most effective and adaptable workforce.

New research infrastructure

The following questions refer to Section 2.5 - New research infrastructure in the Issues Paper.

Q13. Review the full set of available suggestions for potential new or enhanced capabilities from the published Survey responses (Question 35) and identify up to 3 that you regard as most important to consider for inclusion in the 2026 NRI Roadmap. Please provide a brief rationale for your view and include the response number(s) for your selection.

Capability 1
Please include the ID and name

236_Roadmap Survey National Open Science Task Force - Repository

Capability 2
Please include the ID and name

210_Roadmap Survey Australian Academy of the Humanities - Repository infrastructure for high value collections - STEM also has this problem; a 'joined up' discussion about future proofing is needed. Australia's sovereign data in the humanities is at risk

Capability 3
Please include the ID and name

235_ Roadmap Survey Australian Proteome Analysis Facility, Macquarie University. We advocate for substantial investment from the government and co-investment from industry to create a critical mass of inter-linked and systems-level data for training AI, machine learning, and large language models (LLMs).

Q14. If you wish to propose an additional priority suggestion for a new or enhanced capability, that was not in the Survey responses, please name it here, and briefly describe the need, the capability, the medium-term goals, impacted research communities, and the timeframe over which its establishment should occur.

These capabilities have been defined in consultation with the library sector, and input from key stakeholders:

- Enhanced discovery of Australia's open research outputs - deliver in next 2 years.
    - An enhanced aggregator and search capability will improve discovery, reuse, and uptake of Australia's open access research by all relevant stakeholders including researchers, cultural sector, civil society, industry and SMEs. Similar capabilities have been

developed in Europe, Brazil, UK, and other regions. This activity would involve investment in a platform to aggregate the content of existing Australian institutional and data repositories, search interface, and usage analytics.
    - Such a capability will address the need for enhanced access controls and metadata, particularly to research about or produced with Aboriginal and Torres Strait Islander Peoples, and also research that is sensitive and requires mediated access.
    - This holistic capability will also contribute to sovereign 'AI-ready' datasets, and potentially to research assessment.
- Service models to enhance Australia's repository infrastructure for 2-3 years.
    - All Australian universities and many other organisations have an institutional repository, used to provide access and to preserve journal outputs, theses, creative works, and datasets. Many institutions have limited system and staff resources to develop these infrastructures, putting ongoing access and discovery of these unique outputs at risk. At the same time, the need for a trustworthy, robust, and ethically acquired and described corpus of Australian research outputs is vital to achieving other research priorities, among them the potential for sovereign AI and 'AI-ready' corpora.
    - Many institutions have moved away from open-source solutions to proprietary platforms to reduce costs and complexity, but these solutions are generally not tailored to the Australian market.
    - The capability would develop a service model that enables institutions to opt-in to a multi-tenancy repository model, based on common infrastructure. This model preserves autonomy for institutions that prefer to retain their existing infrastructure, and cost-effective choices for institutions that prefer to take up a shared solution. International exemplars from Canada, Japan, and Portugal have achieved high uptake.
- Networked diamond journal infrastructure - next 2-3 years
    - Similar to the repository infrastructure, researcher-led journals hosted in Australia require investment to improve access, discovery, preservation, and publishing capabilities at a time when there are significant policy and investment signals internationally encouraging journals to flip from commercial to researcher-led "diamond" open access publishing models. These models are much lower cost than commercial publishing and retain autonomy and ownership over research, but infrastructure and discovery require investment as titles are fragmented across disciplines, institutions and platforms.
    - The first capability would deliver an up-to-date analysis and landscape map of Australian diamond journals, and their discoverability.
    - The second would extend the repository capability described previously to deliver a service model and options for extending repositories to host journals (already exists for instance in DSpace7), or other open platforms with shared hosting. Dedicated staff would be required to deliver this capability and ongoing running of a publishing service.