

## Issues Paper Consultation Survey - public and attributed responses

### Topic 4 - Workforce

This document includes public and attributed responses to the following questions of the Issues Paper Consultation Survey

- Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?
- Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Please note

- Where necessary, text answers to the above questions have been redacted to remove contact details and third-party personal information
- blank submissions have been removed
- respondents who wished to remain anonymous are contained in the document “Anonymous responses to Issues Paper Consultation Survey”

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 282

Fri, Dec 19, 2025, 12:40 PM Australian Eastern Daylight Time  
[ID: sbm39ca5c82480a48d32ad6d]

Title  
Ms

First Name  
Erin

Last Name  
Vest

Organisation  
Northern Australia Indigenous Reference Group

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Irrespective of technical area, NRI staff should possess:

- relational capability and partnership skills, particularly for sustained work with Indigenous and regional partners;
- practical data-ethics and governance capability, drawing on the Framework for Governance of Indigenous Data and Closing the Gap Priority Reforms to clarify purposes and enable safe flows;
- translational literacy regarding how infrastructure supports production, incomes and asset growth in specific regions; and
- a strong orientation to learning and stewardship, including the ability to read indicators, engage in “what changed and why” reflections, and adjust practice accordingly.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention and capability development are likely to be strongest where NRI roles are clearly situated within long-term regional missions. In northern Australia this implies:

- explicit linkage of NRI roles to the Action Plan, Net Zero and critical-minerals agendas; and
- structured pathways for Indigenous and regional people into NRI roles (scholarships, cadetships, apprenticeships and traineeships) via regional study hubs, universities and TAFEs, aligned with the Better and Fairer Schools Agreement, National Skills Agreement, Jobs and Skills Australia and Universities Accord reforms.

NCRIS and related funding arrangements should recognise Indigenous and regional workforce outcomes as a component of facility performance.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 281

Thu, Dec 18, 2025, 10:19 AM Australian Eastern Daylight Time  
[ID: sbm39c4b57be092eff95521e]

Title  
Mr

First Name  
Richard

Last Name  
Brinkman

Organisation  
AIMS

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

NRI personnel need strong collaboration and relationship-building skills to work effectively with researchers, industry partners and government stakeholders. These skills support genuine co-design of research, ensure infrastructure is used to its full potential, and position NRI staff as partners rather than service providers. Complementing this, clear communication and leadership abilities are critical for engaging diverse users, translating complex information, supporting training and safety, and contributing to a positive, high-performing workplace culture.

Foundational project management capability, covering planning, coordination, procurement and risk management, is essential for operating complex national facilities. NRI staff would benefit from commercial literacy and an understanding of industry drivers, enabling more effective research-industry partnerships, cost-recovery approaches and research translation pathways.

Digital fluency is increasingly indispensable. All NRI personnel require baseline skills in digital research tools, data stewardship, cybersecurity and the responsible use of AI to operate in modern data-intensive research environments. Cultural competency is also vital, particularly in relation to Aboriginal and Torres Strait Islander data governance, ensuring NRI workplaces are culturally safe, inclusive and aligned with national expectations.

Finally, strong customer-service capability and core research literacy enable staff to support users effectively, troubleshoot challenges, and contribute intellectually to research planning and execution. These skills reinforce the collaborative role of NRI staff and strengthen the overall impact of national research infrastructure investments.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retaining and strengthening the NRI workforce requires a sustained, system-wide approach that provides stability, recognises the distinct identity of research infrastructure professionals, and enables career-long development. The 2026 NRI Roadmap Issues Paper emphasises the need for long-term funding, career development, mobility, and cultural change to ensure Australia can attract and retain a skilled and diverse NRI workforce capable of supporting national research priorities.

Employment stability is critical for retention. Secure, ongoing roles demonstrate that technical expertise is valued and provide staff with the confidence to invest in long-term skill development. Stability must be accompanied by a supportive organisational ecosystem that recognises technical and operational expertise as essential to research excellence, rather than treating NRI personnel as service providers. Embedding technical staff as integral contributors to research design, delivery and translation enhances job satisfaction, strengthens research outcomes, and positions NRI facilities as collaborative partners.

Research Infrastructure technicians require clear, coherent career pathways. Research Technicians and technical specialists occupy roles that differ fundamentally from academic research and from general professional staff, yet these roles are often poorly defined within existing employment structures. Establishing a distinct professional identity for Research Technicians, with transparent progression frameworks, recognised competency levels, and access to structured capability development, would significantly improve retention and attract new talent into the field.

Workforce mobility is another mechanism for both retention and capability uplift. Facilitating secondments and exchanges between similar facilities, within NCRIS capabilities, universities, government laboratories, and international partners, enables staff to broaden their technical experience, build networks, and transfer knowledge across Australia's research infrastructure ecosystem. These exchanges also create cross-institutional alignment, strengthen national collaboration, and generate operational efficiencies by building shared understandings of methods, systems and standards.

To support ongoing capability growth, technical staff must be given time within workloads and awards to pursue complementary skills such as project management, digital and AI tools, procurement, stakeholder engagement, and specialised technical competencies. Investing in staff development creates a workforce that can adapt to evolving research needs, contribute to complex multi-disciplinary projects, and operate modern, data-intensive infrastructure.

Together, stable employment, recognition of technical roles as core to research, clear career pathways, structured mobility opportunities, and dedicated time for skills development form the foundation of an effective retention and capability-building strategy. This approach aligns directly with the Roadmap's emphasis on long-term investment, cultural uplift and workforce mobility and will ensure Australia maintains a highly skilled, motivated, and future-ready NRI workforce.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 280

Wed, Dec 17, 2025, 04:47 PM Australian Eastern Daylight Time  
[ID: sbm39c0f2481e2631f35ad9d]

Title  
Mr

First Name  
Daniel

Last Name  
Blanket

Organisation  
Indigenous Business Australia (IBA)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Regardless of technical expertise, it is critical that the NRI workforce understands Aboriginal and Torres Strait Islander People's cultures, knowledges, and histories, as well as Indigenous Data Sovereignty and FPIC principles.

Australia's research system operates within a culturally diverse context, and the data retained in NRI institutions must be handled with respect and cultural understanding. Equipping employees with the skills to engage respectfully and interpret diverse perspectives will foster a more competent and cohesive workforce.

The NRI Issues Paper highlights the importance of a science and research system that is culturally safe for Aboriginal and Torres Strait Islander peoples. This priority should also extend to other communities, including those from culturally and linguistically diverse (CALD) backgrounds, LGBTIQ+ communities, and gender diverse groups.

Embedding cultural capability will strengthen the NRI's ability to deliver research that is respectful, inclusive, and globally relevant. A culturally competent workforce will be better equipped to collaborate across Australia's diverse communities and with international partners.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 279

Tue, Dec 16, 2025, 04:41 PM Australian Eastern Daylight Time  
[ID: sbm39bbc62f6232d3e8641e3]

Title  
Dr

First Name  
Rebecca

Last Name  
Farrington

Organisation  
AuScope Ltd

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Cultural competency, leadership, and communication skills are critical for our RI workforce. While it can be acknowledged that not all individuals can possess these other critical skills, their presence and development must be supported and recognised in balance with technical expertise.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

NCRIS recognises people as infrastructure, but many staff remain on short-term contracts. All efforts should be made to transition staff from short-term contracts, e.g. to funding contingent permanent positions. Institutions where this is possible should be required to employ 'baseline' NCRIS staff under these employment conditions.

Clear career pathways, identified national role clusters, and portability should be identified, communicated and championed across NCRIS capabilities, clusters and partners. Institutions where a more appropriate work focus category/classification (e.g., professional/academic, research specialist) is possible should be required to employ NCRIS staff under these conditions.

Structured traineeships and/or graduate programs with cohort support and growth across NCRIS should be developed to attract, retain, and build early-career research infrastructure specialists.

Leadership and non-technical professional development (e.g., cultural competency, leadership, and communication) should be funded when not available through host institutions.

Communities of practice and (where practical) shared services should continue to be supported to ensure expertise isn't isolated within individuals (people, facilities and institutions).

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 278

Mon, Dec 15, 2025, 11:25 AM Australian Eastern Daylight Time  
[ID: sbm3990e6ae8ee5be5d2df39]

Title  
Ms

First Name  
Laura

Last Name  
Regan

Organisation  
Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

One critical skill integral to AIATSIS is cultural capability. We support our employees in fostering their cultural capability and provide training via our CORE: Cultural Learning course that was developed internally and in partnership with Department of Prime Minister and Cabinet and the Department of Social Services. Cultural capability is a lifelong journey, and through exploration of issues can allow you to gain a deeper sense of self-awareness and critical reflection and develop personal and professional capacity to engage respectfully and effectively in an intercultural context.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 277

Fri, Dec 12, 2025, 04:55 PM Australian Eastern Daylight Time  
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Title  
Prof

First Name  
Michael

Last Name  
Dobbie

Organisation  
Phenomix Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce requires a diverse set of professional skills, including:  
project and risk management,  
quality management, including understanding of international standards, validation and testing requirements relevant to their technologies,  
financial management,  
communication,  
customer service and understanding client motivations,  
understanding of industry drivers and culture, and  
literacy in emerging fields e.g. AI/ML.  
Not all these skills are needed by each RI specialist but across teams a mixture of these skills will provide the necessary high-quality services to the various NCRIS clients.

The Academy for Collaborative Research Infrastructure (ACRI) has evidenced the value and necessity for such skills in addition to technical specialities. Furthermore, NRI workforce individuals would greatly benefit from membership of professional networks across NRI providers to enhance expertise sharing and workforce mobility, facilitating a cohesive NRI ecosystem.

An exemplar area needing an increased range and scale of professional skills is preclinical modelling. The development and delivery of preclinical New Approach Methodologies (NAMs) - also known as Non-Animal Models or Non-Animal Technologies (NATs) - is forecast to need thousands of technicians, scientists, engineers, marketers who are not only developing these emerging technologies but also ensuring they are industry-ready [Reference: CSIRO (2023) "Non-Animal Models: A strategy for maturing Australia's medical product development capabilities". CSIRO, Canberra]. This report estimates the global

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

organoid market, for example, will grow from the current ~\$2B to over \$30B and create 4,200 jobs by 2040 in Australia alone.

Through universities, and in partnership with the pharmaceutical industry and regulators (incl. Therapeutic Goods Administration), the skills and training required include data stewardship for interoperability, quality management to ensure reproducibility and compliance, ability to explain concepts and provide training, and develop system improvements and efficiencies.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

A coordinated, multi-pronged approach is necessary to enhance the NRI workforce. Key strategies include strengthening host institutions' roles in recognising and rewarding NRI staff, ensuring clarity on staff contributions and funding within universities, and requiring consultation on actions affecting NCRIS-funded staff. Implementing the Research Infrastructure Specialist (RIS) Job Family across the sector is essential for staff recognition and parity. Additionally, attracting and retaining skilled RI personnel through national incentives, along with reassessing recruitment pathways for overseas specialists, will help address current barriers in hiring. Addressing misaligned salary thresholds and cultural reluctance around visa sponsorship for non-academic staff is crucial for progress.

The Technician Commitment, hosted by the UK Institute for Technical Skills and Strategy, aims to ensure visibility, recognition, career development and sustainability for technicians working in higher education and research, across all disciplines. It has been enormously successful in supporting RI staff in the UK and Phenomics Australia endorses the proposal to adapt and establish the Technician Commitment in Australia.

Retention also benefits from positioning NRI roles as translational rather than purely technical. Fellowship-style exchanges with industry partners, competency frameworks aligned to quality management standards, and leveraging workforce programs (such as CRC's industry placements) create career pathways that develop skills valued across both research and commercial sectors.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 276

Fri, Dec 12, 2025, 04:29 PM Australian Eastern Daylight Time  
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Title  
Dr

First Name  
Sarah

Last Name  
Tynan

Organisation  
Science & Technology Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce is not a uniform, homogenous collection of workers. As with any research facility - indeed any organisation - a range of skills and expertise are required to ensure the organisation operates successfully. Depending on the size of the organisation these are executed by various staff, sometimes as part of a combined role. The 'soft skills' required to effectively run NRI are no different to those required across any other workforce - i.e. strong skills in effective communication, governance, financial management, evaluation and impact monitoring, strategic planning and stakeholder engagement (including government relations, member management and industry engagement).

Executive and managerial staff must be equipped with the skills to oversee both the strategic and operational needs of complex organisations, orchestrate complex governance arrangements, navigate government policy settings (including across diverse state and federal portfolios), as well as liaise effectively with the academic, government and industry sectors.

The operational staff for NRI extend from administrative support roles to deeply technical niche roles that are challenging to fill. These technical staff must also have the agility and adaptability to accommodate the needs of different NRI users, spanning academia, government and industry.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

While STA welcomes a focus on workforce by the NRIAG, we caution the Roadmap document and process focussing too much on workforce, as workforce issues can largely be addressed through NRI funding mechanisms. The greatest benefit would be for the NRIAG to focus on separate advice to Government on funding allocations for PFRA allocations and various grant schemes (i.e. NCRIS, LEIF and MRFF) and appropriate grant requirements

that incentivise and enable sustainable workforce planning and employment structures, that are agnostic of the employing entity.

The primary issue with the NRI workforce is the challenge in recruiting and retaining uniquely skilled staff in a system that is fundamentally underfunded, which can lead to a lack of job certainty and security and competitiveness of salaries to industry, and can lack the operational control to establish appropriate pay and conditions to provide stepped career progression for skilled technical staff to. The challenge primarily lies in filling the deeply specialised, technical roles that are essential to most NRI operations. These roles are often highly niche, with limited numbers of qualified people to be found globally, let alone domestically in Australia. For NRI hosted at universities, it can also be challenging to account for this specialised skillset within standard university staffing categories - which generally only include academic or professional (administrative and technical support) streams. As NRI staff generally are categorised as professional staff, and salary levels in the stream are simply insufficient to offer a competitive market rate needed to recruit and retain staff.

Appropriate budget and time for continuous professional development should be allowed for all NRI staff to ensure they retain - and upgrade - their highly specialised skill sets and to ensure they remain reliable, expert advisors for industry and researchers.

Current visa settings can also pose barriers to effective recruitment from overseas to fill highly specialised roles. Some visas' eligibility require applicants to exceed a set salary threshold, and often NRI facilities are constrained in the salary they can offer applicants. These constraints come from overall insufficient funding available to provide attractive salaries, and for university-hosted NRI, the professional staff category can pose additional challenges. The limited salaries available for professional staff are insufficient to meet some visa thresholds. Furthermore, these visa types require sponsorship from the employing institution, and some institutions have a blanket policy of only sponsoring academic staff, not professional. Australia is missing out.

Some universities have developed a third staff classification to resolve this issue. For example, the University of Queensland has implemented a new sub-category of the academic staff stream, known as a platform academic. This classification is for staff that enable research through platform expertise, including platform maintenance and providing expert technical and scientific advice and support. However, this solution is not uniformly available across the sector. The NRIAG should explore this issue and canvass solutions that would deliver to a consistent approach for all NRI.

Additionally, the NRIAG could recommend to Government that it explore the potential for ministerial discretion to the minimum annual salary for visas for NRI staff where unique, specialised workforce skills and experience are identified as globally constrained.

Another potential way to build the NRI workforce is for institutions to develop - and fund - PhD pathways in which NRI is deeply embedded in the PhD candidate's project. This would help build the NRI workforce and provide attractive research-adjacent career pathways for PhD graduates, but is dependent on long term funding of NRI.

Regardless, the Roadmap must acknowledge these challenges, and present a strong position that all NRI planning and investments must include adequate funding that will ensure:

- competitive salaries
- job security
- professional development opportunities that are relevant and useful to staff.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 273

Thu, Dec 11, 2025, 10:21 AM Australian Eastern Daylight Time  
[ID: sbm39a0aa2c95b73041fc8a6]

Title  
Ms

First Name  
Alethia

Last Name  
Barceinas

Organisation  
Cooperative Research Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

CRA has long emphasised that people are core infrastructure and identifies the following skills as universal across NRIs:

- research translation literacy;
- Indigenous Data Sovereignty literacy;
- data governance, privacy, ethics and security;
- community and stakeholder engagement (including Indigenous engagement);
- cross-sector collaboration skills;
- digital capability, including AI literacy;
- project management and regulatory awareness.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

CRA recommends that the best approach to retain staff and develop new capabilities in the NRI workforce comprehends:

- stable, multi-year operational funding (not limited-term project cycles);
- structured national career pathways, similar to international RI models;
- a mobility program across universities, CRCs, industry and government;
- embedded training programs developed with CRCs and industry;
- recognition frameworks for technical and professional expertise;
- safe workplaces that protect cognitive/digital overload;
- improved role security and competitive remuneration.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 269

Tue, Dec 9, 2025, 12:35 PM Australian Eastern Daylight Time  
[ID: sbm3996d7fd699f477fc7935]

Title  
Mr

First Name  
Warwick

Last Name  
Dawson

Organisation  
University of Newcastle

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

- Leadership and Strategic Thinking: the ability to manage change and plan strategically to turn vision into outcomes.
- Collaboration and Stakeholder Engagement: strong partnership building and communication skills to foster trust and alignment across diverse groups, including in our regions.
- Project and Resource Management: capability in risk management and data stewardship to ensure responsible and effective use of resources.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Key Strategies for Retention

- Competitive Employment Conditions
- Recognition and Engagement
- Workplace Wellbeing
- Stable Funding Models

Building New Capabilities

- Upskilling and Reskilling Programs
- Cross-Disciplinary Training
- Partnerships with Industry and Academia
- AI and Data Integration
- Leadership Development

Evaluation and Continuous Improvement

- Workforce Metrics
- Feedback Loops
- Adaptive Planning.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 265

Tue, Dec 9, 2025, 09:06 AM Australian Eastern Daylight Time  
[ID: sbm399619162787ecd113cff]

Title  
Ms

First Name  
Chanel

Last Name  
Beynon

Organisation  
Children's Cancer Institute

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Regardless of discipline, all NRI personnel should possess a strong foundation in data management and governance literacy, including adherence to FAIR (Findable, Accessible, Interoperable, Reusable) and CARE (Collective Benefit, Authority to Control, Responsibility, and Ethics) principles. They should demonstrate stakeholder engagement and collaboration skills, particularly across sectors such as medical research, government, and industry, and maintain high standards of ethics and cultural competency.

The workforce should also demonstrate digital fluency, encompassing data analytics, AI, and cybersecurity, alongside translation and communication capability to articulate the value of infrastructure to end-users and decision makers.

The workforce should also possess an understanding of how research infrastructure integrates with the health system, along with a broad awareness of rapidly emerging fields such as genomics, to ensure Australia remains at the forefront of clinical translation and innovation.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

strengthen workforce retention and capability development, a coordinated, long-term approach is required across the national research infrastructure system. Key measures could include:

- Provide multi-year, secure funding for NRI positions to reduce reliance on short-term contracts and improve job stability.
- Develop a national NRI Workforce Strategy that includes mobility schemes across academia, industry, and clinical settings to foster cross-sector experience.
- Offer training fellowships and leadership programs, particularly for women, First Nations researchers, and early- to mid-career professionals, to build diversity and capability.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Recognise infrastructure roles as formal career pathways, incorporating performance and impact metrics into NCRIS reporting.
- Enhance staff mobility and exchange opportunities, including overseas placements and reciprocal visits to encourage international collaboration and skills development.
- Raise awareness of research infrastructure careers, including greater recognition of the field in schools and university undergraduate degrees, to attract future talent.
- Introduce targeted incentives to encourage long-term retention, professional growth, and cross-disciplinary capability building.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 264

Tue, Dec 9, 2025, 08:17 AM Australian Eastern Daylight Time  
[ID: sbm399160d29fcce63c4a102]

Title  
Dr

First Name  
Esther

Last Name  
Pronker

Organisation  
Non-Animal Technologies Network

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Across all technical domains, the NRI workforce needs a strong set of core, transferable skills:

- o Emotional Intelligence-Related Skills
- o Collaboration and Service Orientation
- o Requires empathy, teamwork, and the ability to share credit fairly, key aspects of relationship management.
- o Inclusion and Accessibility
- o Involves understanding diverse perspectives and designing inclusive services, which reflects empathy and social awareness.
- o Continuous Improvement Mindset
- o Comfort with change and openness to feedback show adaptability and self-regulation.
- o Communication and User Support
- o Ability to explain complex concepts clearly and engage respectfully with diverse users demonstrates empathy and strong interpersonal skills
- 2. Technical and Compliance-Related Skills
- o Data Governance and Integrity
- o Covers accurate record-keeping, version control, FAIR data principles, and secure handling of sensitive and Indigenous data, so results are reproducible and trustworthy.
- o Regulatory and Ethical Compliance
- o Commitment to standard operating procedures, validation, biosafety, and research integrity, with an understanding of regulatory expectations (e.g. for NAMs, clinical data, and biobanking).
- o Risk and Security Management
- o Includes awareness of physical, biological, cyber, and data security risks, plus proactive mitigation.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

These two skillsets are essential to operate any complex infrastructure such as organoid, biobanking and computational platforms in a safe, ethical and nationally coordinated way.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

To retain and strengthen the NRI workforce, Australia needs a people-centred approach that recognises the specialist skills required to operate sophisticated and emerging research infrastructure:

1. Skills Growth and Inclusive Workforce

o Specialised skills development

Provide protected time for training and innovation, including micro-credentials, hands-on fellowships, and rotations across NCRIS facilities to build cross-platform expertise in NAMs, GMP-like quality, biobanking, and data governance.

o Offering internationally renowned courses and workshops in Australia

Host world-class training programs locally to upskill the workforce and attract global expertise in NAMs, regulatory science, and advanced technologies.

o Bidirectional industry and clinical secondments

Facilitate placements that build translation skills and ensure research aligns with real-world needs.

o Inclusive, diverse workforce programs

Grow the pipeline of talent, including Indigenous researchers and technicians, through supported entry pathways and partnerships with hospitals, TAFEs, and universities.

2. Workforce Stability and Career Development

o Stable, long-term operational funding

Avoid reliance on short contracts to ensure continuity of service and quality for highly technical staff managing biobanks, organoid platforms, imaging, and informatics.

o Clear technical career pathways

Establish nationally recognized technical courses (TAFE or above levels), promotion tracks for professional infrastructure staff with equal status to academic roles, recognizing method development, validation, regulatory preparation, and user support.

o Competitive and nationally consistent remuneration

Regular salary benchmarking against industry for scarce skills in bioengineering, computational biology, cell manufacturing, and clinical-data management to prevent attrition.

o Provision for NRI workforce salary support in research funding schemes: Provide a vehicle whereby research organisations participating in NRI can apply for salary costs for skilled personnel (unrelated to specific research projects) to schemes including the NHMRC, ARC and MRFF.

o These actions will ensure Australia maintains sovereign capability in critical infrastructures such as organoids and microphysiological systems, and is able to scale national facilities to meet emerging research and industry demand.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 263

Tue, Dec 9, 2025, 01:00 AM Australian Eastern Daylight Time  
[ID: sbm399339e3937cce80af176]

Title  
Ms

First Name  
Erika

Last Name  
Slavin

Organisation  
University of Western Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

UWA considers that, regardless of and in addition to discipline or technical focus, the NRI workforce must demonstrate a strong foundation of professional, leadership and translational skills that enable effective collaboration, strategic management, and cross-sector engagement.

Key skills and attributes include:

- Business, compliance and commercial literacy: including understanding of financial management, procurement, HR processes, risk and compliance frameworks, and the ability to navigate contracts, intellectual property, and partnership agreements.
- Data and digital literacy: capability to manage, analyse and govern data responsibly, and to engage effectively with evolving digital tools, information systems and cyber security requirements across research domains.
- Leadership and communication: the ability to lead teams, communicate complex information clearly to diverse audiences, and foster a culture of inclusion, safety and continuous improvement.
- Translation and engagement skills. capacity to translate research capability into outcomes for academia, government, industry and community partners, including communicating impact and building enduring partnerships.

In addition, the NRI workforce should be supported by mechanisms that promote mobility as a means of knowledge exchange and capability development. Structured opportunities for staff placements across national facilities, exchanges with international partners, and secondments to and from the commercial sector enable the sharing of expertise, alignment of best practice, and the cultivation of a cohesive national research infrastructure community.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

This approach aligns with the Academy Collaborative Research Infrastructure (ACRI) Strategy, which highlights workforce mobility, data capability, and professional development as essential enablers of innovation, continuous learning, and long-term sustainability across Australia's NRI system.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

UWA considers that the most effective approach to retaining and strengthening the NRI workforce is to recognise and reward research infrastructure expertise as a distinct and valued career path, while fostering a connected, collaborative, and continuously developing national community of practice.

Key actions include:

- Establishing a third stream and merit-based pathway for research infrastructure professionals within the university sector. This should provide clear criteria for advancement that recognise technical excellence, leadership, user engagement, and contributions to research impact, rather than focusing solely on academic scholarly outputs. Such a framework would enhance retention, motivation, and succession planning, and promote parity of esteem between research, teaching, and infrastructure roles.
- Investing in workforce connectivity, networking, and communities of practice nationally, internationally, and across disciplines. Structured collaboration networks and exchange opportunities will enable staff to share expertise, align standards, and build cohesive professional identities across facilities and institutions. This includes participation in international research infrastructure consortia.
- Embedding professional development that strengthens the core skills and attributes identified above including business, compliance and commercial literacy; data and digital capability; leadership; cultural competency; and translational engagement. Continuous learning opportunities, mentoring, and short-term exchanges across disciplines and countries will build adaptive, future-ready professionals and add new capabilities to the workforce.

Together, these measures would establish a sustainable, merit-based career structure for the NRI workforce, promote national and international connectivity, and ensure that Australia retains and grows the skilled professionals essential to operating and evolving its research infrastructure system.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 261

Mon, Dec 8, 2025, 09:16 PM Australian Eastern Daylight Time  
[ID: sbm39938f34b887b80a9f65e]

Title  
A/Prof

First Name  
Robyn

Last Name  
Schofield

Organisation  
The University of Melbourne

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

NRI staff should have Integrity, possess multidisciplinary, system thinking skills, work in an open source and data sharing, growth mindset ways that acknowledges different ways of knowing and doing. All NRI staff should document methodologies, serve and uplift the wider society providing accessible infrastructure.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Recruitment internationally, and a 'return home' recruitment drive for international applicants that were trained in Australia will avoid the 'poaching' within the constrained talent pool of existing experts within Australia.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 259

Mon, Dec 8, 2025, 06:44 PM Australian Eastern Daylight Time  
[ID: sbm39930401337c20d6a6bfc]

Title  
Dr

First Name  
Callum

Last Name  
Shakespeare

Organisation  
The Australian National University

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Need to liaise better with the communities they serve. Currently many NRI staff work in their own 'bubble' without a good understanding of how to prioritise their work in terms of its utility for the academic community. This leads to a waste of their time and taxpayer resources.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

A stronger focus on work based training and career progression. Rather than always needing to seek new staff, perhaps existing staff can upskill in relevant areas; e.g., by doing exchanges with other NRI entities, or relevant overseas orgs.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 255

Mon, Dec 8, 2025, 05:28 PM Australian Eastern Daylight Time  
[ID: sbm39841f5d9e50e7f06c289]

Title  
Ms

First Name  
Jo

Last Name  
Webb

Organisation  
Animals Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills required for Australia's NRI workforce include:

- Ethical leadership and communication skills - to enable healthy cultures in high-stakes research environments and address complex issues like psychological safety, conflicts of interest and burnout prevention.
- Capabilities in data-driven, human-specific (non-animal) research tools - to progress with global scientific trends and expand Australia's sovereign capabilities.
- Regulation and governance fluency - skills and knowledge in contemporary human and animal ethics (and animal welfare where relevant) to uphold policy and regulation.
- Responsible integration skills - to combine technology, governance, ethics, and user needs into ethical, trusted, sustainable and human-relevant infrastructure.
- Technological competence and foresight - to enable NAMs adoption and drive continuous improvement.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Greater institutional transparency and recognition of the challenges faced by the research infrastructure workforce, including the psychological harms associated with Australia's continued and prevalent reliance on animal models. Moral injury and lack of adequate mental health support is a demonstrated driver of high staff turnover and workforce shortages.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Moral injury is generally understood as the enduring psychological, social or spiritual harm that can follow experiences where a person perpetrates, fails to prevent, or witnesses actions that violate their own moral beliefs or experiences of betrayal by institutions or leaders in high-stakes contexts. It commonly involves guilt, shame, anger, betrayal, moral dissonance, loss of trust and existential conflict rather than fear-based symptoms alone. The term has been applied in peer reviewed literature across sectors including biomedicine, healthcare, military and human services.

There is a growing body empirical evidence linking moral injury to people working in environments such as animal testing (LaFollette et al, 2020; King & Zohny, 2020; Johnson & Smajdor, 2022). A recent mixed-methods survey of animal research personnel in the USA reported that professional quality of life is associated with both retention and job satisfaction, and argues that improving wellbeing could help prevent expensive and time-consuming employee turnover (Young et al, 2024).

Increased innovation will attract and retain talent. Greater adoption of NAMs in Australia would help innovate the NRI workforce by enhancing scalable capabilities and boosting employment opportunities. This has been demonstrated by a recent CSIRO report, highlighting that Australia's NAMs sector could generate 5,000 jobs and more than \$1.5 billion in revenue by 2040 (CSIRO, 2023) if the Commonwealth prioritises and adequately funds NAMs development.

#### References

LaFollette et al, 2020 -  
file:///C:/Users/JOD393-1.WEB/AppData/Local/Temp/MicrosoftEdgeDownloads/1af8fe94-e84d-4ca1-b7a4-dd253db8708a/fvets-07-00114.pdf

King & Zohny, 2020 <https://jme.bmj.com/content/medethics/48/5/299.full.pdf>

Johnson & Smajdor, 2022 - chrome-extension://efaidnbnmnnibpcajpcglclefindmkaj/https://research-management.mq.edu.au/ws/portalfiles/portal/195021364/Publisher\_version.pdf)

Young et al, 2024 -  
<https://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0298744>)

CSIRO, 2023 - <https://www.biospectrumasia.com/news/26/22974/non-animal-models-industry-to-generate-over-1-5-b-and-5000-jobs-for-australia-by-2040-study.html>

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 253

Mon, Dec 8, 2025, 05:26 PM Australian Eastern Daylight Time  
[ID: sbm3992bbf69e9f6ddb69ea2]

Title  
Dr

First Name  
Talía

Last Name  
Avrahamzon

Organisation  
Research Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Our response to question 7 draws on insights from a recent Research Australia Health Economics Symposium, which convened more than 100 policymakers, health economists, clinicians, researchers, consumer peak organisations and industry leaders. Centred around enhancing productivity, participants highlighted workforce development and access to interoperable, linked data as key enablers to improving national policy making, health systems and outcomes for patients. Some of the critical skills identified as underpinning workforce capability were:

- Advanced grant and proposal development
- Commitment to continuous professional learning
- High-level information analysis and synthesis
- Responsiveness and adaptability to emerging priorities
- Program and outcome evaluation expertise
- Strong management and leadership capability
- Effective multidisciplinary and cross-sector collaboration

Many of these critical skills are in line with the 2022 Research Infrastructure Specialist Position Paper, which was signed by 22 NCRIS Projects, and includes indicative KPIs that could be used to develop a job family for Research Infrastructure Specialists.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Alignment of workforce strategy: Research Australia acknowledges that the development of a NRI Workforce Strategy is one of the key priorities of the NRI Advisory Group to support career pathways, address technical skills shortages and identify capability gaps. We strongly advocate for coordinated and robust workforce planning to retain staff and

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

grow capabilities in the NRI workforce. However, it is critical that an NRI Workforce Strategy is not duplicative and aligns or is embedded within the National Health and Medical Research Workforce Plan and Australian Health and Medical Research Infrastructure Roadmap, both outlined in the draft National Health and Medical Research Strategy, as well as the expansion of workforce incentives emerging from the Strategic Examination of Research and Development (SERD). NRI investments underpin both reforms and therefore should be considered within, not adjacent, to their development to prevent fragmentation and initiate whole-of-systems reforms.

**Data, monitoring and evaluation:** Workforce planning initiatives must be underpinned by comprehensive longitudinal data collection, monitoring and evaluation. Research Australia notes previous publicly available NRI census data up to 2020, with data on usage, impacts and operation of NCRIS National Research Infrastructure facilities, including both physical infrastructure and human resources. Annual data collection should be prioritised which maps and forecasts the NRI workforce, demographics, capability gaps, and project domains, alongside other key metrics.

**Ongoing training and development opportunities:** The NRI workforce produce, maintain and operate high performing and complex facilities and equipment which, given the ever-changing of research, makes ongoing training and long-term development opportunities critical. Furthermore, as outlined in the Brisbane Statement, the research infrastructure staff of the future will need to be trained in the increasingly interdisciplinary crossroads between research and technology. The 2026 Roadmap should consider leveraging and scaling fellowships, secondments and internships to continuously develop workforce skills and knowledge and empower circular mobility in new and interdisciplinary frontiers. Domain-specific training programs should also be scaled across the ecosystem to develop competencies in areas such as high-performance computing, data analytics and bioinformatics.

**Review reward and recognition systems:** The 2022 Research Infrastructure Specialist Position Paper highlighted the critical need for the national system to more effectively recognise the essential contributions of research infrastructure specialists. Development of a dedicated classification that reflects the distinct skills and responsibilities of these positions has merit and should be explored further as part of NRI workforce planning initiatives, given the current challenges in fitting these specialist roles within the university system where NCRIS Research Infrastructure Specialists are predominantly located. These should then be embedded within Australian Bureau of Statistics' (ABS) Standard Classification of Occupations to empower workforce data capture and evaluation. While several institutions, including major universities, have since implemented new classifications or related mechanisms, adoption remains uneven across the sector. As such, addressing this gap and must form a key component of an NRI workforce strategy aimed at improving staff retention and long-term capability. Furthermore, NCRIS facilities and their workforce rely on a connected, research-active health and medical ecosystem, which helps retain staff by fostering attitudes, behaviours, and institutional practices that recognise the NRI workforce's vital contribution to health outcomes, evidence-based policy, and care.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 250

Mon, Dec 8, 2025, 05:15 PM Australian Eastern Daylight Time  
[ID: sbm3992b187229f78ce6ded8]

Title  
Dr

First Name  
Brian

Last Name  
Tse

Organisation  
Translational Research Institute

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Having managed a research core facility at a medical research institute for the past decade, I believe modern-day NRI personnel must wear multiple hats that span scientific, managerial, and strategic arenas to maximise their enduring impact across academia, industry, government, and clinical sectors. Critical skillsets include: (1) scientific knowledge and technical expertise, which form the foundation for research and innovation; (2) financial management skills for effective handling of cost recovery models, forecasting, and capital planning to ensure sustainability; (3) an entrepreneurial mindset to drive innovative solutions and identify new opportunities and partnerships; (4) negotiation, diplomacy, and customer relationship skills to navigate complex scientific and business matters; (5) communication and marketing capabilities to engage diverse stakeholders to promote and demonstrate impact; (6) ICT proficiency to support the growing reliance on digital platforms and infrastructure; and (7) human resource management skills to foster a positive culture and operational success. Formal training in these areas should be provided to all members, of all levels, within the NRI workforce.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

To effectively retain and attract new personnel and grow the NRI workforce, several factors are critical: (1) job security through continuing or long-duration contracts provides stability and confidence for long-term career planning; (2) appropriate recognition and acknowledgement of scientific contributions and broader impact is essential, as it can be disheartening for staff to feel “taken for granted” for the services they provide; (3) clear career progression pathways that span multiple years and include opportunities for lateral movement, such as taking on managerial responsibilities, help maintain engagement and ambition; (4) competitive remuneration comparable to industry standards is vital to prevent the loss of highly skilled personnel to other sectors; and (5) ongoing, highly

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

prioritised training throughout a career, covering both scientific expertise and broader areas such as management, ensures adaptability and growth. Continued and increased investment through NCRIS is fundamental to achieving these goals.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 247

Mon, Dec 8, 2025, 05:09 PM Australian Eastern Daylight Time  
[ID: sbm399147a8eee16457387fd]

Title  
A/Prof

First Name  
Nicola

Last Name  
Smith

Organisation  
Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

**Data stewardship:** Accurate record-keeping, version control, and secure data management with respect for privacy and Indigenous data protocols.

**Quality and integrity:** Apply standard procedures, routine checks, and ethical practices to ensure reproducibility and compliance.

**Communication and user support:** Explain concepts clearly, provide training, and maintain timely, transparent engagement with users and partners.

**Collaboration and service:** Work effectively across institutions and sectors, manage projects, and share credit fairly.

**Risk and safety awareness:** Understand physical, cyber, and data security; report incidents; and mitigate hazards.

**Accessibility and inclusion:** Design services and training for diverse users and regions.

**Sustainability and interoperability:** Minimise waste, plan for lifecycle management, and use common formats for seamless data exchange.

**Continuous improvement:** Gather feedback, review performance, and refine processes over time.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

**Provide stable jobs.** Fund multi-year base positions for facility scientists, technicians, engineers, data and software specialists, and user support. Avoid short, stop-start contracts.

**Create clear career paths.** Establish technical promotion tracks equivalent in status to academic tracks. Recognise a breadth of outputs and impact that are appropriate to job roles.

**Pay competitively.** Set national pay bands with additional allowances for scarce skills. Review salaries regularly against industry to prevent attrition.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Protect time to innovate. Give staff scheduled time for method development, method validation, maintenance and documentation, not only service delivery.

Build the skills pipeline. Offer apprenticeships, trainee programs and micro-credentials for technicians and early-career staff. Run rotations across labs, facilities and data services, and incorporate secondments and exchanges between universities, NCRIS facilities, hospitals, government labs and industry so skills spread and collaborations form.

Work with and incentivise tertiary education providers to develop degrees with appropriate curriculum to support the next generation of scientists, engineers, technicians, data scientists and software specialists to ensure that Australia is an international leader. This is consistent with state and federal government objectives to ensure sovereign medicines discovery, development and manufacture in Australia.

Australia faces a significant shortage of toxicologists with significant drug discovery and development expertise. To address this gap and advance the application of NAMs, implement a targeted local training strategy and, where necessary, recruit qualified experts from overseas.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 246

Mon, Dec 8, 2025, 05:03 PM Australian Eastern Daylight Time  
[ID: sbm3992a7c4567c4b5088a27]

Title

Other: "Distinguished Professor"

First Name

Calum

Last Name

Drummond

Organisation

RMIT University

In what capacity are you responding?

A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

- OHSE skills
- Research methods, particularly hypothesis testing, data collection, curation and data analysis
- Project Management
- Strategy and Planning
- Team management
- Finance & Budgeting
- Operations and dependencies
- Training and Research engagement
- Customer Service and project lifecycle management
- Quality Control and Assurance
- Communication and outreach
- Marketing and Business Development
- Research Ethics and legal
- Research sector and NRI ecosystem understanding
- Partnerships and collaboration
- Specialist skills in discipline domains
- Enthusiasm and commitment to teamwork and the public interest.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Our stakeholders suggested the following:

- Long term stability and security, including a career structure with clearly defined potential for promotion and progression (as well as lateral movement)
- Workload allocation that includes time for exploratory research to ensure they stay relevant in their area of expertise

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Opportunities for training and upskilling.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 244

Mon, Dec 8, 2025, 04:57 PM Australian Eastern Daylight Time  
[ID: sbm39821cde8b8012ffd6281]

Title  
Dr

First Name  
Janet

Last Name  
Yeo

Organisation  
ATN Universities

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

ATN Universities supports an NRI workforce that combines technical expertise with skills in data stewardship, digital literacy, Indigenous recognition, and industry and community engagement. Contextual understanding of the research domain and the ability to work effectively with qualitative as well as quantitative data are also important, particularly where infrastructure supports humanities and social sciences research. Strong project management capability is also important to support collaboration across sectors and disciplines.

Workforce settings should recognise ethical practice, cultural safety, inclusion and flexible employment as core principles. Consistent with our earlier SERD submissions, ATN Universities emphasises that NRI workforce capability is a national enabler and should be deliberately planned and supported.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

ATN Universities supports approaches that create portable, multi-institutional career pathways across National Collaborative Research Infrastructure Strategy (NCRIS), universities and industry. Continued investment in mobility programs, secondments and technical training will strengthen the skills pipeline. We also support building commercialisation and business-development capability within the NRI workforce, recognising that infrastructure staff are often the first point of contact for industry. This includes training in client management, IP, costing, contracting and impact communication.

Hybrid roles that combine technical and engagement expertise can be effective when co-funded by NCRIS capabilities and universities. Funding certainty is essential for retention,

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

and recognition of technical and infrastructure roles in promotion frameworks is also important. Clearer role frameworks and progression pathways for specialist NRI staff would also support retention and help address the workforce insecurity created by short funding cycles.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 241

Mon, Dec 8, 2025, 04:48 PM Australian Eastern Daylight Time  
[ID: sbm3992635109cc268517344]

Title  
A/Prof

First Name  
Elizabeth

Last Name  
Williams

Organisation  
Australian Nuclear Research and Education Network

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

ANREN strongly supports the Roadmap's focus on the NRI workforce, noting that highly skilled staff are fundamental to ensuring Australia's research infrastructure can enable high-quality, cutting-edge research. However, ANREN emphasises that the Roadmap should more clearly acknowledge the crucial yet often overlooked role that NRI personnel play in developing the next generation of skilled workers.

At facilities such as the Australian Synchrotron and the Heavy Ion Accelerator Facility, staff routinely mentor students and support research training across science and engineering. These activities, which significantly strengthen Australia's sovereign capability, are frequently undertaken in addition to normal operational duties and rely heavily on available staff capacity. ANREN recommends that the Roadmap explicitly recognise these educational responsibilities and ensure workforce models allow staff the time and resources needed to contribute meaningfully to the national training pipeline.

In addition, ANREN supports the Roadmap's emphasis on long-term investment and staff mobility but highlights the importance of workforce resilience. Many NRI support staff possess highly specialised knowledge that is not easily replaced, meaning that workforce continuity and succession planning are essential to maintaining service quality and supporting ongoing infrastructure development.

To meet these needs, NRI personnel must be able to collaborate and communicate effectively with a wide range of stakeholders, contribute to the training of highly skilled workers, and identify opportunities for interdisciplinary collaboration across relevant domains. Collectively, these capabilities ensure that research infrastructure not only operates effectively today but also builds and sustains the workforce required to support Australia's future scientific and technological ambitions.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retaining highly skilled personnel and attracting new capability into the NRI workforce requires a deliberate strategy that recognises the specialised nature of research infrastructure roles, values staff expertise, and provides structured opportunities for professional growth. For complex and safety-critical domains—including nuclear science, radiation sciences, accelerator operations, and advanced instrumentation—staff retention is inseparable from national capability, as many roles cannot be easily replaced and require long lead-times to train. Consistent with ANREN’s mission to build sovereign scientific capability through education, research and collaboration, we recommend a multi-layered approach.

First, research infrastructure personnel must be able to see clear, supported career pathways. This means long-term, stable employment; opportunities for progression; and the autonomy to develop new or enhanced research capabilities within their facility. Valuing staff as experts—recognising both their technical contribution and their role as educators and essential members of the research team—will help prevent attrition and strengthen institutional resilience.

Second, the Roadmap should explicitly support research training within NRI environments. Many facilities already provide informal or voluntary support for undergraduate, postgraduate and early-career research training, but this contribution is often unrecognised and unsupported. Enabling NRI staff to collaborate directly with researchers, universities and training providers—through co-supervision, project partnerships, and structured student access programs—creates a dynamic environment that sustains skills development for both staff and students. This approach is particularly aligned with ANREN’s demonstrated pipeline model, where research, teaching and professional training are tightly integrated across institutions.

Third, NRI providers should be incentivised to build strong collaborative networks, both domestically and internationally. Exchanges, secondments, joint capability projects, and shared training programs between facilities—especially those with overlapping technical or domain interests—promote knowledge transfer and help staff remain engaged, mobile and professionally current. International partnerships, in particular, expose Australian staff to global best practice and emerging technologies, strengthening sovereign capability in areas where domestic expertise is limited.

Fourth, infrastructure must remain accessible for a broad range of research needs and supported by dedicated funding that enables staff to engage in collaborative, infrastructure-enhancing pilot projects. When staff are funded and encouraged to work with researchers on novel applications, new instrumentation modes, or prototype capabilities, they are more likely to remain engaged, develop new expertise, and contribute to innovation within the national system. This ensures that NRI evolves in line with emerging scientific directions.

Finally, enabling mobility—through support for travel, conference participation, training programs and short-term placements—is essential. These experiences not only support staff development but help facilities stay connected to international standards and innovations. Such mobility is particularly important for fields facing global workforce

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

shortages, such as nuclear science and engineering, where access to international expertise accelerates the pace of capability building.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 240

Mon, Dec 8, 2025, 04:47 PM Australian Eastern Daylight Time  
[ID: sbm39917fe4b0e16b9dda5ba]

Title

Other: " "

First Name

Nuria

Last Name

Lorente

Organisation

Australian Astronomical Optics (AAO), Macquarie University

In what capacity are you responding?

An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

- An understanding of the research lifecycle, so as to align technical solutions with real scientific needs;
- Independence and a project-agnostic mindset, ensuring decisions are guided by best practice, rather than narrow project interests;
- Strong communication and collaboration skills, to bridge gaps between technical and research teams;
- Adaptability and continuous learning, enabling responsiveness to evolving techniques and research priorities.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

- Offer clear, secure career pathways that are intellectually stimulating and provide opportunities for advancement;
- Ensure individuals feel valued through recognition of their expertise and contributions, not just technical output;
- Invest in continuous professional development, including training in emerging technologies and leadership skills;
- Foster a collaborative culture where staff can engage with diverse projects and communities, promoting flexibility and cross-domain learning;
- Provide long-term stability through sustainable funding and transparent governance, so staff can plan their careers with confidence.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 239

Mon, Dec 8, 2025, 04:38 PM Australian Eastern Daylight Time  
[ID: sbm3992907a2487bb504e518]

Title  
Mrs

First Name  
Rosie

Last Name  
Hicks

Organisation  
Australian Research Data Commons

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Development of data, cybersecurity, AI/ML, ethics and cultural safety skills would benefit the entire NRI workforce, regardless of infrastructure type or individual role:

DATA: Data use and data literacy skills are widely applicable across NRI, with the application of data skills spanning from sensitive data use in research, through to the management of organisational data (e.g. HR records). This includes knowledge and skills relating to:

- governance and management
- provenance and lifecycle
- formats, metadata, data structures
- sharing, access and handling
- ethics, privacy and security (especially for sensitive data), and
- policy and principles, such as FAIR and CARE.

In particular, sensitive data - which can include identifiable personal data, Indigenous data, ecological data, commercial data or health and medical data - is subject to additional ethical and legal requirements. Wherever applicable, NRI staff must have access to resources and skills development opportunities to support the responsible handling of sensitive data.

CYBERSECURITY: As data and other digital security risks increase, data privacy, security and sovereignty increasingly rely on an NRI workforce that is risk-aware and skilled in maintaining secure practices. Staff operating NRIs must have the skills to maintain cybersecure practices across all role types - from administrative through to technical roles.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**AI/ML:** The proliferation of AI/ML and related technologies is driving demand for AI-related skills beyond STEM - in all fields of research, and across all NRI role types. AI/ML-related skills critical for all NRI staff include the ability to learn, evaluate and govern AI; to critically evaluate AI-produced content; and the safe, ethical use of AI in research.

**ETHICS:** Research integrity depends on trust - trust in the reliable and ethical collection of data, responsible data governance, and the integrity of research practices. It is essential that the NRI workforce can demonstrate strong ethical awareness and judgment to ensure research infrastructure supports integrity, transparency and accountability. This includes maintaining rigorous standards when AI is deployed in research contexts, where questions of reproducibility and bias become increasingly complex.

**CULTURAL SAFETY:** The continued integration and elevation of Aboriginal and Torres Strait Islander knowledge systems throughout Australian research requires culturally respectful and safe data practices that prioritise Indigenous peoples' self-determination - including high awareness and understanding of the CARE Principles for Indigenous Data Governance.

NRI staff should be capable of applying all skills listed above across varied settings (academia, government, industry), with diverse people and groups, and in different formats (online, in-person, hybrid).

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

It is important to recognise that successful career pathways for staff might involve changing organisations and sectors. NRIs have a role in training Australia's future workforce. An appropriate goal is a thriving innovation sector that has opportunities for staff movement.

This would include funding certainty across NRI roles and initiatives that directly enables the retention and development of the NRI workforce as appropriate. In addition to the direct benefits associated with employment and project stability, funding certainty affords NRI personnel the prerequisite stability required for a number of secondary approaches necessary to add new capabilities to the NRI workforce, including:

- Professional development activities, including long-term alignment of professional aspirations to organisational initiatives and goals
- Career planning and progression
- Training and upskilling activities aligned to organisational aims
- Cross-NRI mobility, through staff exchanges and opportunities to work across projects and facilities, including through fellowships, mentorships, internships, secondments and industry placements.

Funding stability also enables NRI organisations to develop and offer dedicated personnel training and upskilling aligned to organisational and national priorities; and the long-term investment in employment conditions that promote wellbeing.

Retention of NRI staff would be improved by creating the option to promote on technical impact/ability, rather than requiring a change in position description.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 238**

Mon, Dec 8, 2025, 04:36 PM Australian Eastern Daylight Time  
[ID: sbm39928f12e487f43459169]

Title  
A/Prof

First Name  
Graeme

Last Name  
Hart

Organisation  
ARDC / University of Melbourne / Austin Hospital

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Domain knowledge, sector engagement and work experience, technical proficiency and innovation skills

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
respect, remuneration, facilities and meaningful work - minimal bureaucracy and wheel spinning,

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 236

Mon, Dec 8, 2025, 04:31 PM Australian Eastern Daylight Time  
[ID: sbm39928a43167cd24b77883]

Title  
Mr

First Name  
Jarrod

Last Name  
Ross

Organisation  
Universities Australia

In what capacity are you responding?  
A representative of an organisation or group

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

In our recent publication *From fragmented to future-ready: the next generation of researchers* (<https://universitiesaustralia.edu.au/wp-content/uploads/2025/09/SERD2-2025-Next-gen-researchers.pdf>), Universities Australia argues for a strategic whole-of-government approach to research workforce planning.

In the context of research infrastructure skills, such an approach would allow the consideration of broader industrial relations issues and therefore a possible third stream for technical staff to exist alongside the traditional university model of “Academic” and “Professional”.

To be effective, a national research workforce strategy must be co-designed in partnership with key stakeholders. This includes universities, industry, Medical Research Institutes and government agencies such as the Australian Research Council, the National Health and Medical Research Council, the Department of Education, Jobs and Skills Australia and the Department of Innovation, Industry, Science and Resources.

The development process should begin with a detailed profile of Australia’s research workforce to establish a baseline, and clearly defined roles and responsibilities across stakeholder groups. A well-designed strategy could:

- Identify and address systemic barriers to mobility between industry and academia.
- Support targeted skills development, (including embedded within PhD training, but also for technical staff) and continuing professional development.
- Examine the right balance between domestic training and skilled migration to meet workforce needs.
- Reduce barriers to PhD entry, including financial challenges, and guide university decisions on research training programs.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Determine the optimal size and focus of the PhD cohort, with appropriate incentives to attract and retain talent.
- Promote non-traditional research careers and provide support for early to mid-career researchers
- Build a diverse and inclusive workforce that reflects modern Australian, and
- Recognise and support Indigenous research and technical talent and the value of Indigenous Knowledges and methodologies.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 235

Mon, Dec 8, 2025, 04:31 PM Australian Eastern Daylight Time  
[ID: sbm39928a00c18781563c360]

Title  
Prof

First Name  
Julian

Last Name  
Thomas

Organisation  
Australian Internet Observatory

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The following is a revised list of skills based on the survey run by Academy for Collaborative Research Infrastructure: Project Management; Strategic planning; Talent and Resource management; Finance & Budgeting; Training and Research engagement; Product delivery and project lifecycle; Quality Control and Assurance; Communication and outreach; Marketing and Business Development; Ethics and legal; Partnerships and collaboration; Research and research sector experience; Enthusiasm and commitment to collaboration and the public interest.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Inspire talented people to join the NRI workforce with interesting work and meaningful projects that contribute value to society and the environment, provide job stability, flexibility and career pathways, recognise and reward excellence and teamwork, and treat people with respect and compassion.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 234

Mon, Dec 8, 2025, 04:22 PM Australian Eastern Daylight Time  
[ID: sbm399281fb72874b1789f7c]

Title  
Prof

First Name  
Bradley John

Last Name  
Evans

Organisation  
The University of New England

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Across all NRIs, core skills should include: (i) co-design and engagement, particularly with Aboriginal and Torres Strait Islander communities and industry; (ii) data stewardship and ethics, including FAIR and CARE principles and Indigenous data governance; (iii) interdisciplinary communication, to bridge scientists, engineers, humanities scholars, policy makers and communities; (iv) systems thinking, to understand end-to-end capability (for example, from the proposed UNE ASPIRE airborne acquisition through calibration, AI/ML and Earth system modelling to decision-ready products); and (v) project and campaign management skills for complex, multi-partner campaigns. A translation-and-impact mindset should be expected of all NRI staff.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention and capability growth require stable, multi year roles, clear career paths, regional hubs and coordinated training. Recognising and tackling integration of these staff across industry, academia and the wider research ecosystem. NRI professionals should have recognised career structures and performance frameworks that value infrastructure development, standardisation, community partnership and operations, not just publications. Regional universities such as UNE can act as NRI workforce hubs, with facilities like the proposed UNE ASPIRE anchoring high end skills in regions, supported by joint appointments and secondments with NASA JPL, CSIRO, TERN, APPN and IMOS. A national training program in hyperspectral remote sensing, AI, Indigenous data governance and Earth system modelling, plus targeted scholarships and fellowships for Aboriginal and Torres Strait Islander researchers and technicians, will be crucial for building and retaining a capable, diverse NRI workforce.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 233

Mon, Dec 8, 2025, 04:20 PM Australian Eastern Daylight Time  
[ID: sbm398ee2ff90a69f7652c44]

Title  
Dr

First Name  
Merran

Last Name  
Smith

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Leadership, communications and program planning/management/governance skills are critical, as is digital literacy. Skills in stakeholder engagement are also important.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Employment security based on long term RI funding is essential for recruitment and retention of skilled NRI staff.  
Staff exchanges including international and industry exchanges can be useful for professional and network development and upskilling.  
Developing a cohort of past and present NRI leaders who can mentor and support new and emerging NRI leaders may also be worthwhile.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 231

Mon, Dec 8, 2025, 04:17 PM Australian Eastern Daylight Time  
[ID: sbm39927d773b875a8460ca6]

Title  
Prof

First Name  
Devanshi

Last Name  
Seth

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Regardless of discipline and technical depth, the workforce needs a shared set of critical, future-proof skills that underlie long term planning and implementation: Data, digital & AI fluency, Long-term asset stewardship, Translate complex capability into impact, Inclusive and diverse leadership quality, Indigenous engagement, Ethical use of data and technology, Embedding social licence into infrastructure decisions.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention and capability growth require long-term funding signals, professionalised career structures, and serious investment in people, not more resilience workshops.

-Recruit around national missions (AI-ready infrastructure, sovereign data, climate, health) so new capability integrates fast and has purpose.

-Many leaders are promoted for technical excellence without leadership training.

Systematically develop people managers, program leaders, and board-literate executives from within the workforce.

-Treat workforce as a national asset, with shared capability frameworks, mobility across facilities, and coordinated skills forecasting.

-Enable formal staff sharing and co-appointments across institutions to avoid duplication and burnout.

-Reward capability growth in performance and promotion frameworks.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 229

Mon, Dec 8, 2025, 04:14 PM Australian Eastern Daylight Time  
[ID: sbm39927a2c339fdf12aa016]

Title  
Dr

First Name  
Markus

Last Name  
Herderich

Organisation  
The Australian Wine Research Institute (AWRI)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills include  
fundamental STEM technical and scientific skills, including deep domain expertise combined with practical/commercial experience;  
communication skills; and  
experience with development, translation and commercialisation.

Beyond technical/scientific skills, critical gaps exist as most of the research workforce lacks professional experience outside traditional university pathways, hindering effective industry engagement and translation.

Developing a dedicated NRI workforce might facilitate smoother transitions between academic, research and commercial roles, and could be supported through approaches that support collaboration and mobility through industry placements by NRI staff and research hotel arrangements at NRI facilities by industry collaborators.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Attracting, developing, and retaining a suitable R&D workforce requires a multi-faceted approach that addresses current shortcomings. Elements of an NRI workforce strategy may include (not in order of priority):

Support for career development of technical (non-PhD) and specialist staff: Establish clear career pathways and opportunities for growth and mobility within the R&D services sector, including mentorship programs, strengthening two-way academia-industry and academia-government pathways, and leadership training.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**Access to cutting-edge resources:** Provide NRI staff with access to state-of-the-art research facilities, laboratories and technology networks. Encourage and reward collaboration between NRI facilities and support active engagement in communities-of-practice.

**Retention of highly skilled staff requires stability.** Provide stable and sustained employment models through long-term investment for NRI facilities, to attract the best talent, enable attractive employment conditions, ensure continuity of expertise and raise confidence of staff who plan their career development.

**Financial incentives, recognition and awards:** Establish awards and recognition programs for NRI staff who strive for excellence in service delivery, capability development, and support for translation and commercialisation. Publicly acknowledge the achievements of NRI staff and collaborations supported by NRI facilities.

**Facilitate international collaboration:** build partnerships with international research institutions and not-for-profit CROs to attract global talent, build new capabilities and support professional development of NRI staff. This can include exchange programs, joint technology development projects and opportunities for international networking.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 228

Mon, Dec 8, 2025, 04:07 PM Australian Eastern Daylight Time  
[ID: sbm39927460d3cc363a0a2ad]

Title  
Dr

First Name  
Michael

Last Name  
Banazis

Organisation  
Western Australian Department of Energy and Economic Diversification

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

In many ways, NRI must operate as a business. Therefore, operational and business management skills would be useful to promote career advancement for the NRI workforce (including at each node, not just the national facility) and the sustainability of the infrastructure. Such skills include budgeting, business case development, leading and managing people, etc.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Technical/criteria-based progression methods and embedded PhD/higher education programs (including internships) are options for continuing to upskill and retain top talent in technical areas. The above suggestion aligns with Action 6.2 of the Action Plan for WA's 10-year Science and Technology Plan (Talent, skills and workforce Strategic Action Area). A simultaneous bottom-up and top-down approach could also be useful. For bottom-up, consider the skills and qualifications the NRI workforce needs and then determine if the tertiary and vocational education sectors are producing enough adequately trained graduates. For top-down, positions for NRI workforce should be paid commensurate with private sector rates and job security should be provided (minimum 5-yr contracts where the infrastructure the position is associated with is ongoing in nature, even if NCRIS funding is not guaranteed). Transition/bridging funding for personnel should be incorporated in NCRIS budgets so that in the event of delays in the availability of NCRIS funding, NRI personnel have job security.

The above suggestions align with Actions 1.1 and 1.5 of the Action Plan for WA's 10-year Science and Technology Plan (Talent, skills and workforce Strategic Action Area).

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 226

Mon, Dec 8, 2025, 04:06 PM Australian Eastern Daylight Time  
[ID: sbm399272e09ee1968fa05e4]

Title  
Prof

First Name  
Richard

Last Name  
McDermid

Organisation  
Astronomical Society of Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce is highly skilled and highly qualified, often with a higher degree in research and/or high-level professional qualifications in discipline areas. This workforce often sits at the interface of research and operational work, and the ability to understand both the academic and operational contexts of their role is critical. With the increased emphasis on developing more direct societal benefits from research, additional awareness of industrial and commercial contexts is of growing importance. Additionally, a key aspect of the NRI workforce is administering investments and overseeing projects. This requires a high level of governance and administrative capability, effective project management, financial acumen, and relationship management.

Astronomy NRI investments encompass a wide range of operational contexts, requiring a broad set of workforce skills beyond technical/discipline expertise. These include:

- Business development skills for industry engagement and translation.
- Project governance and management capabilities that can appropriately cater for various scales, from well-defined short term projects, to large-scale long-term projects with international collaboration, to program-level management.
- Skills required for sustainable management of large teams and operation of high-cost facilities in an uncertain funding landscape, often within a distributed structure and/or co-hosted within a University or other over-arching institutional structure.
- Communication skills to engage with the communities served where appropriate, in order to maintain partnerships/collaborations with researchers and other stakeholders and ensure that capabilities are adding value.
- The ability to teach and mentor junior team members in highly specialised (often technical) areas.
- Training in data handling, statistics and programming.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Workforce mobility, flexibility, and career progression (e.g. not pigeonholing staff artificially into 'research/academic' and 'technical/professional' career paths).

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Staff retention is critical to the NRI workforce. The work involved within NRI facilities is often highly specialised, often with unique equipment, requiring the development of deep expertise and knowledge that require long-term experience to accumulate. NRI facilities, by their definition, involve bespoke equipment, techniques, and skills, meaning that an effective NRI workforce cannot be exposed to high levels of turnover, in general.

The best approach to retain this high-value workforce is through sustained and stable funding that reflects the infrastructure project or program duration. This should be substantiated through a workforce planning process that reflects the workforce needs of the NRI, either on a continuing basis, or for the expected NRI lifetime as appropriate. Exposing the NRI workforce to constant uncertainty of funding cycles creates significant management overhead, generates staff turnover with associated loss of key skills, and hampers effective recruitment from necessary sectors (e.g. higher-paying industries).

Recurrent funding is also key to adding new capabilities. The highly-trained NRI workforce is demonstrably adaptable. Development and training is a natural process within the NRI strictures already, as research demands and technologies evolve. Moreover, much of the NRI workforce operates within a role-driven framework, making skills training a key method for developing and growing staff capabilities - key for retention, but only possible within a stable funding environment.

In the context of astronomy, developing and operating observatories, running high-performance computing facilities, and enabling specialised instrumentation, all demonstrate a highly-adaptable and skilled workforce that evolves its capabilities as research needs demand. The primary risk to retention and capability development is funding scarcity and instability.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 224

Mon, Dec 8, 2025, 04:00 PM Australian Eastern Daylight Time  
[ID: sbm399137434dccd866a3d5c]

Title  
Dr

First Name  
Luke

Last Name  
Hendrickson

Organisation  
Australian Bureau of Statistics

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Researchers need to know how to understand, use and extract meaningful results from ABS integrated data infrastructure and to connect these results with real-world problems. We need researchers who can communicate with influence so that research is embedded in decision-making. To use this infrastructure, researchers also need to understand their ethical and cultural obligations with respect to privacy, Indigenous data sovereignty and disability informed research.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

For the research facilities themselves to offer training and host communities of practice, including code sharing and other open science applications.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 223

Mon, Dec 8, 2025, 03:30 PM Australian Eastern Daylight Time  
[ID: sbm3992520404e102ba14a8d]

Title  
Prof

First Name  
Janeen

Last Name  
Baxter

Organisation  
ARC Centre of Excellence for Children and Families over the Life Course

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
People management, and emotional intelligence.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Higher salaries, better conditions, job security, training opportunities, mentoring, clear career paths.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 219

Mon, Dec 8, 2025, 03:11 PM Australian Eastern Daylight Time  
[ID: sbm399240c2b2e106923210d]

Title  
Prof

First Name  
Christopher

Last Name  
Armstrong

Organisation  
University of New England

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Divided into four critical skill priorities.

1. Operational Business Mindset

It is important for the NRI workforce to understand that research is not merely about science and discovery; it is also about efficiency, effectively operating like a business unit. Staff benefit greatly from understanding cost recovery models, resource allocation, and the financial implications of operational decisions. The ideal staff member doesn't just "do the task" but understands the cost of the task and looks for ways to optimise it (e.g., calculation of consumables, minimising waste).

2. Modern Digital Competency

Beyond basic computer literacy, proficiency in digital workflow automation is becoming essential to reduce administrative burden. This allows operations to move away from paper trails towards centralised systems, ensuring better data integrity and real-time reporting.

3. Regulatory Compliance

In research facilities (like UNE's Centre for Animal Research & Training), safety and biosecurity are more than a checkbox; they should be a mindset. It is valuable for both research and operating staff to have the soft skill of translating complex regulatory frameworks (OGTR, Animal Ethics Committees, WHS) into practical, daily workflows without compromising research speed. The goal is to be proactive risk managers, rather than just rule followers.

4. Resilience and Emotional Intelligence

Particularly in animal research, we face "compassion fatigue." Staff members need the emotional tools to handle the ethical weight of the work. Furthermore, resilience is required to adapt to shifting research schedules (weekends, shutdowns) and client demands without burning out.

5. Co-design and engagement

Particularly with Aboriginal and Torres Strait Islander communities and industry;

6. Data stewardship

Data stewardship and ethics, including FAIR and CARE principles and Indigenous data governance;

7. Communications

Interdisciplinary communication, to bridge scientists, engineers, humanities scholars, policy makers and communities.

8. Systems thinking

Systems thinking, to understand end-to-end capability (for example, from ASPIRE airborne acquisition through calibration, AI/ML and Earth system modelling to decision-ready products); and project and campaign management skills for complex, multi-partner campaigns. A translation-and-impact mindset should be expected of all NRI staff.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention and capability growth require stable, multi year roles, clear career paths, regional hubs and coordinated training. NRI professionals should have recognised career structures and performance frameworks that value infrastructure development, standardisation, community partnership and operations, not just publications.

1. Professionalisation and Purpose over Service

Shifting the narrative from technical staff being "service providers" to "research partners" is key. Retention is often challenging when staff feel they are just cleaning cages or running machines. Involving them in the wins, drawing on them from project design, acknowledging them in papers, and including them in complex problem-solving allows them to see the impact of their work. When they see the strategic vision and the results, they are more likely to stay.

2. Reciprocal Exchange Programs (The "Ayllu" Model)

To add capabilities without exploding the budget, implement a reciprocal labour and training exchange between different areas within an institution or amongst NRI nodes (e.g., UNE swapping staff with CSIRO or other universities for short stints). This combats monotony, cross-pollinates skills, and creates a more versatile workforce that can cover gaps when facing challenges.

3. Formalise Knowledge Transfer and Mentoring

We frequently lose critical institutional memory when a senior researcher or technician leaves. Formalising mentoring—where senior technical officers and academics are encouraged, perhaps via KPIs, to train juniors—ensures that knowledge is not siloed in one person's head but is documented and shared. Integration of staff members amongst multidisciplinary teams to share institutional knowledge to solve common problems.

4. Transparent Career Pathways

Technical staff often hit a ceiling very quickly. Defining clear pathways that allow for specialised growth (e.g., becoming a Facility Manager, a Compliance Specialist, a Technical Trainer, a Research Officer, an Animal Welfare Specialist, etc.) is preferable to forcing them into general administration just to secure a pay rise.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 217

Mon, Dec 8, 2025, 02:54 PM Australian Eastern Daylight Time  
[ID: sbm3991171cf5e581238031a]

Title  
A/Prof

First Name  
Christopher

Last Name  
Marquis

Organisation  
University of NSW

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Good communication skills, familiarity with working under regulated quality management systems

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Competitive salaries and pathways for career progression. Job security rather than short-term contracts. Continue to train and upskill staff

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 215

Mon, Dec 8, 2025, 02:48 PM Australian Eastern Daylight Time  
[ID: sbm398fca2558f052661b15a]

Title  
Prof

First Name  
Marcia

Last Name  
Langton

Organisation  
The University of Melbourne

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The future NRI workforce should have the following critical skills, which would prioritise forming teams of researchers that incorporate them across its membership, emphasising the need for team leaders to incorporate them as essential research project operational issues in staff recruitment and research design:

Adaptability and flexibility - The ability to work across various projects and interdisciplinary needs is highlighted as necessary for the core generalist team.

Collaboration skills - The proposed hybrid model emphasises fostering a workplace culture that promotes effective collaboration between generalists and specialists.

Continuous learning - The model encourages ongoing learning and skill development to help generalists cultivate deeper expertise over time.

Communication skills - The ability to share knowledge and insights across disciplines is mentioned as important, such as specialists sharing expertise with generalists.

Project management - Being able to adapt to changing research landscapes and efficiently allocate resources is noted as a benefit of the proposed model.

Strategic thinking: understanding long-term research goals and aligning work accordingly is mentioned.

Interdisciplinary knowledge - Having broad expertise that can be applied across different fields is highlighted as valuable.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Data management skills - The ability to work with research data in accordance with principles like FAIR and CARE is noted as increasingly important.

Cultural awareness - Skills in working respectfully with Aboriginal and Torres Strait Islander knowledge systems and communities are emphasised.

Industry engagement - The ability to collaborate effectively with industry partners and support research translation is highlighted.

In addition to the strategic skills listed above, to create a robust national research infrastructure for the humanities in Australian universities and research institutions, the workforce would likely need to develop several specific technical skills. Here are some key areas:

Data Management and Curation

Digital archiving techniques  
Metadata creation and management  
Data cleaning and preparation  
Digital Humanities Tools

Text analysis software (e.g., NLTK, spaCy)  
Visualisation tools (e.g., Tableau, D3.js)  
Geographic Information Systems (GIS)  
Programming and Scripting

Python for data analysis and automation  
R for statistical analysis  
SQL for database management  
Web Technologies

HTML/CSS for web content creation  
JavaScript for interactive web applications  
Content Management Systems (e.g., WordPress, Drupal)  
Digital Preservation

File format migration  
Emulation techniques  
Long-term storage solutions  
Machine Learning and AI

Natural Language Processing (NLP)  
Image recognition and analysis  
Sentiment analysis  
Information Retrieval

Search engine optimisation  
Query language proficiency  
Indexing techniques  
Network Analysis

Social network analysis tools

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Network visualisation software  
Version Control

Git for collaborative work and code management  
Cloud Computing

Understanding of cloud platforms (e.g., AWS, Azure)  
Distributed computing concepts  
Cybersecurity

Data protection methods  
Privacy-enhancing technologies  
API Development and Integration

RESTful API design  
API documentation  
Project Management Tools

Agile methodologies  
Collaboration platforms (e.g., Jira, Trello)  
Digital Publishing

E-book creation  
Open access publishing platforms  
Virtual and Augmented Reality

3D modelling  
VR/AR development tools  
Audio-Visual Production

Video editing software  
Podcast production tools

By developing these technical skills, the humanities workforce in Australian institutions would be better equipped to create, manage, and utilise a comprehensive national research infrastructure. This would enable more efficient collaboration, data sharing, and innovative research methodologies across the humanities disciplines.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

To address the question of retaining staff and building new capabilities in the national research workforce, we recommend a multi-pronged approach:

**Retention Strategies:**

**Competitive remuneration:** Ensure salaries and conditions are competitive across the sector to prevent staff being enticed by other opportunities.

**Professional development:** Offer ongoing training and development programs to keep staff engaged and up to date with the latest developments in their field.

**Career progression:** Provide clear career pathways and advancement opportunities within the organisation.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**Work-life balance:** Implement flexible working arrangements and policies that support a healthy balance between work and life.

**Recognition and rewards:** Establish a system to recognise and reward outstanding performance and contributions.

**Adding New Capabilities:**

**Skills gap analysis:** Undertake a thorough assessment of current capabilities and identify areas where new skills are required.

**Targeted recruitment:** Develop a strategic recruitment plan to attract talent with the specific skills and expertise needed to address identified gaps.

**Collaboration with academia:** Partner with universities and research institutions to create internship programs and bring in emerging talent.

**Cross-training:** Encourage existing staff to develop new skills through cross-departmental training and job rotation.

**Mentorship programs:** Pair experienced staff with newer employees to support knowledge transfer and capability development.

**Creating a Supportive Environment:**

**Foster innovation:** Create an environment that encourages creativity and innovation, giving staff the freedom to explore new ideas and approaches.

**Inclusive culture:** Promote a diverse, inclusive workplace that values different perspectives and experiences.

**Open communication:** Maintain transparent communication channels to keep staff informed about organisational goals and changes.

**Technology and Infrastructure:**

Invest in modern technology and equipment to ensure staff have the tools they need to work effectively.

Create collaborative spaces that support teamwork and knowledge sharing.

**Continuous Feedback and Improvement:**

**Regular performance reviews:** Hold frequent check-ins and formal reviews to provide feedback and identify opportunities for improvement.

**Employee surveys:** Regularly gather staff feedback to understand their needs and concerns, and act on the insights.

**Succession Planning:**

Identify key roles and develop succession plans to ensure continuity and create opportunities for internal advancement.

**Industry Partnerships:**

Work with industry partners to stay up to date on emerging trends and technologies, and provide staff with exposure to real-world applications of their work.

By implementing a combination of these strategies, the NRI can work to retain valued staff while strengthening its workforce's capabilities. The effectiveness of these approaches will depend on the organisation's specific context and needs, so regular review and refinement are essential.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 214

Mon, Dec 8, 2025, 02:38 PM Australian Eastern Daylight Time  
[ID: sbm399222e7fce577fa5e340]

Title  
Ms

First Name  
Julie

Last Name  
Rothacker

Organisation  
ACU

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

- Digital literacy and data management.
- Cultural competence and ethical governance.
- Interdisciplinary collaboration and creative problem-solving.
- Community engagement and participatory research methods.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

1. Secure Employment and Career Progression

- Move beyond short-term, grant-dependent contracts by creating stable roles embedded within institutions and national facilities.
- Develop clear career pathways for technical and specialist roles, including progression opportunities and recognition frameworks similar to academic tracks.

2. Continuous Professional Development

- Provide ongoing training in digital skills, cultural competence, and emerging technologies (e.g., AI, data analytics, FAIR/CARE principles).
- Enable staff to participate in national and global networks, conferences, and exchange programmes to bring best practices and new workflows to Australia.
- Encourage partnerships with industry and international research organisations to expose staff to cutting-edge tools and operational models.

3. Inclusive and Flexible Workplaces

- Foster diversity and inclusion through targeted recruitment and retention strategies.
- Offer flexible working arrangements and pathways that allow movement between industry, government, and higher education sectors.
- Support secondments and joint appointments to enable staff to work across organisational boundaries.

4. Mobility and Collaboration

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Create structured mobility programmes between academia, industry, and community sectors to broaden experience and strengthen translational research.
- Incentivise cross-sector collaboration through shared infrastructure projects and co-investment models.

5. Recognition and Incentives

- Introduce recognition schemes for technical contributions to research infrastructure.
- Provide incentives for innovation, such as awards for developing new workflows or integrating emerging technologies.

6. Workforce Planning and Succession

- Implement national workforce planning to anticipate future skills needs and avoid gaps.
- Develop mentoring and leadership programmes to build capability and retain institutional knowledge.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 212

Mon, Dec 8, 2025, 02:26 PM Australian Eastern Daylight Time  
[ID: sbm3991b0a4cbe5f9b022797]

Title  
Mr

First Name  
Heath

Last Name  
Marks

Organisation  
Australian Access Federation

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

To ensure the NRI workforce has the skills and expertise to implement authentication, authorisation and best practice T&I, the following cross-cutting skills will be invaluable:

- Systems thinking and interoperability
- Stakeholder collaboration and co-design
- Security and risk management
- AI literacies
- Policy and governance navigation
- Awareness and leveraging international best practice
- Cultural competency and understanding of Indigenous knowledge systems
- Commercialisation skills.

Staff (noting reliance on volunteers in HASS), access to core training for the sustainability and ongoing maintenance of collections, data curation, infrastructure etc is essential.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Effective approaches could include, professional development (both locally and internationally), mentorship, workforce mobility and developing communities of practice (including local and international best practice organisations ). It may also be useful for NRI/NCRIS to have a staff services award or public call out, to highlight the valuable support and services NRI staff provide to the community. Critical to any of this activity is ensuring long-term funding certainty for staff. See good practice case: Academy for Collaborative Research Infrastructure.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 210

Mon, Dec 8, 2025, 02:19 PM Australian Eastern Daylight Time  
[ID: sbm3992119adee1d90ac0ea1]

Title  
Prof

First Name  
Pascal

Last Name  
Perez

Organisation  
AURIN

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

AURIN agrees with the outcomes of the survey conducted by ACRI in 2023, focusing on non-technical skill needs that encompass all NRI facilities: Project Management (equipment procurement, delivering industry projects, effective contracting); Strategy and Planning (organisational strategy, capability roadmaps, budgets, business cases, KPIs); Finance & Management Accounting (pricing, cost-recovery, budgeting, financial reporting); Customer Service (client focus, managing expectations, survey tools and metrics, continuous improvement); Quality Control and Assurance (NATA, ISO, industry standards); and Understanding of the Australian Innovation Ecosystem (triple helix approach, funding schemes and principles).

On the technical side, AURIN-relevant skill sets of the future include Infrastructure as Code, Data as a Services, Analytics as a Service and AI-enabled geospatial reasoning (aka contextual AI).

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Although job certainty (long-term contracts) and valuation (salary level) are on-going sources of discussion within the NRI workforce they shouldn't be perceived as inherent flaws of NCRIS funding but, more broadly, as a structural consequence of funding and employment constraints within the Higher Education system. The attractiveness of working in an environment that prioritise innovation, knowledge sharing and public good value shouldn't be underestimated.

Retaining highly skilled personnel within the NRI workforce proves more difficult due to: (1) frustrating working environment (unclear career progression, limited recognition, inconsistent role classification across universities), (2) suboptimal professional

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

development (need for structured access, time allocation, and organisational support), as well as (3) limited exposure to industry opportunities (need to enhance research translation skills, secondment to industry, hosting industry personnel).

Recognising the unique expertise of NRI workforce, at the junction between academia and industry, could vastly increase the ability of NRI providers to attract and retain staff as both sectors would value skill sets on offer. However, some barriers need to be lifted such as academics currently leaving their tract to join a NRI, without any guaranty to move back later. The Technician Commitment, and the Academy for Collaborative Research Infrastructure (ACRI) are well placed to lead advocacy and change.

Due to the size of individual NRI providers, career progression is limited within a single facility. However, it would be beneficial to develop a 'skills marketplace' within the NRI community in order to offer longer-term trajectories for personnel, from one facility to another.

The NRI spanning capabilities, such as digital and business skills, noted in Q7, can be delivered across NRI through multiple new and existing shared platforms, such as Research Data Australia, the Australasian Research Management Society, and international platforms.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 205

Mon, Dec 8, 2025, 12:38 PM Australian Eastern Daylight Time  
[ID: sbm3990946b81f094c008450]

Title  
Ms

First Name  
Julie

Last Name  
Ellmers

Organisation  
Australian Museum Research Institute

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Beyond technical and domain-specific expertise, the NRI workforce requires a suite of cross-cutting skills to ensure research infrastructure delivers maximum benefit to Australian research communities:

**Communication and collaboration skills:** The ability to translate complex technical capabilities into accessible language for diverse user communities, including researchers from different disciplines, industry partners, government agencies, and the public. This includes skills in training and user support to maximise effective use of infrastructure.

**Cultural competency:** Understanding of and respect for First Nations knowledge systems, cultural protocols, and data sovereignty principles. For collections-based infrastructure, this includes awareness of cultural sensitivities around biological and cultural materials collected from Country, and the capacity to work in partnership with Traditional Owners and communities.

**Data governance and stewardship:** Understanding of FAIR and CARE principles, data lifecycle management, metadata standards, and ethical frameworks for data collection, access, and sharing. This is increasingly critical as research infrastructure becomes more digital and interconnected.

**Project management and coordination:** The ability to manage complex, multi-stakeholder initiatives, coordinate across distributed networks, and navigate the intersection of research, policy, and practical implementation.

**Adaptability and continuous learning:** Research infrastructure operates in a rapidly evolving technological and policy landscape. Workforce members must be committed to professional development and capable of adapting to emerging technologies, methodologies, and community needs.

**Understanding of the national research ecosystem:** Knowledge of how different infrastructure capabilities interconnect, awareness of the broader policy context (National

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Science Research Priorities, national strategies), and the ability to identify opportunities for collaboration and integration across the NRI landscape.

Ethics and integrity: Commitment to ethical research practices, understanding of privacy and consent frameworks, and the judgment to navigate complex ethical situations, particularly regarding sensitive data and culturally significant materials.

For collections-based infrastructure specifically, additional critical skills include understanding of specimen preservation and conservation principles, collection management systems, and the ability to balance competing demands of preservation, access, and use.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retaining skilled NRI staff and building new capabilities requires addressing both systemic structural issues and creating supportive career environments. Two key points are:

1. Address the human resources needed to underpin infrastructure investments.

Funding models that provides capital investment for physical infrastructure (equipment, storage, facilities) while expecting operational budgets to absorb the staffing costs creates an unsustainable situation. When infrastructure is upgraded or expanded, commensurate workforce investment must be included. Staff already operating at capacity cannot absorb additional responsibilities simply because new equipment or facilities are installed.

NRI funding models must recognise that infrastructure is not just physical assets, it is the highly skilled personnel who make those assets functional and accessible - as is addressed in the updated definition. Sustainable funding for both capital and operational costs, including staffing, is essential.

2. Create career pathways and progression, including professional development.

A major retention challenge is the lack of visible career progression for specialised NRI roles. This is particularly acute for taxonomists, conservators, and collection specialists where the compact and specialist nature of our workforce can limit progression.

Suggestions include:

- Allowing for senior specialist positions that recognise deep expertise without requiring transition into general management
- Provide long-term, stable funding to assist in the attraction and retention of high-caliber staff
- Invest in cultural competency training, particularly regarding Indigenous knowledge systems and data sovereignty
- Support opportunities for national and international collaboration and knowledge exchange

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 203

Mon, Dec 8, 2025, 12:29 PM Australian Eastern Daylight Time  
[ID: sbm3991368327cc65c7cda5c]

Title  
Mrs

First Name  
Emily

Last Name  
Duggan

Organisation  
Translational Research Institute

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Regardless of technical expertise, the NRI workforce needs stronger “business-side” capabilities to operate facilities as sustainable, user-focused services, as many staff progress from research roles without formal training in entrepreneurial thinking, financial management, people leadership, or customer service. These competencies are essential for identifying new opportunities, managing budgets and cost-recovery models, effectively leading teams, and delivering high-quality experiences to a diverse user base. Critically, NRI professionals must also understand how to engage and integrate both academic and industry clients, who bring differing needs, expectations, and value drivers. At the same time, it is vital that staff continue to receive access to scientific training, conferences, and professional development opportunities that ensure their technical expertise remains at the global leading edge. Investing in both scientific and business capabilities will enable NRI facilities to operate as resilient, innovative, and impactful national assets.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retaining staff and strengthening the capability of the NRI workforce will require better recognition of the scientific contributions these roles make, along with clearer and more secure career pathways. Many NRI staff play an active role in shaping research outcomes, yet this input is not always acknowledged; ensuring they receive appropriate credit, whether through authorship, project roles or other formal recognition, would significantly improve morale and retention.

Job security is also critical, as ongoing appointments allow staff to build deep expertise, support continuity of service and make long-term career plans within the sector. Providing access to programs that offer academic-style titles and progression pathways would help

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

reinforce the professional standing of NRI roles and make them a more attractive career option.

Dedicated funding is also needed to support upskilling, including fellowships or exchange schemes that allow RI staff to spend time in other facilities within Australia and overseas to broaden experience and strengthen capability. Importantly, national research funding policies should explicitly recognise the RI workforce, with funding bodies clearly stating requirements for adequate acknowledgement of RI professionals in grant applications, reporting and research outputs. In addition, opportunities for staff mobility across institutions, internationally and with industry partners would help staff gain the skills needed to support research translation.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 202

Mon, Dec 8, 2025, 12:26 PM Australian Eastern Daylight Time  
[ID: sbm3991a9a801e5a8d6cc3dc]

Title  
Dr

First Name  
Mike

Last Name  
Hodda

Organisation  
Reference Collections Strategy Implementation Working Group of The Subcommittee for  
Plant Health Diagnostics (SPHD)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
High-level technical expertise is essential, but also ability to see opportunities and synergies from other fields or other infrastructures or assets.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Ongoing positions are essential.

The issues paper suggests that mobility may be important to provide opportunities for sharing of experiences and knowledge. This can be a negative in retaining staff with family and other commitments and a desire for stability. Stability need not preclude sharing of experiences and knowledge as there are alternative (and possibly more efficient) models for information transfer than physical mobility. The National Plant Biosecurity Diagnostic Network and the associated Annual Diagnosticians Workshop, for example, provide a self-organizing, scale-free network that is highly efficient in communicating experience and knowledge, and has the added benefit of creating a community of practice. The outlay is small relative to the benefits.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 199

Mon, Dec 8, 2025, 11:58 AM Australian Eastern Daylight Time  
[ID: sbm398909815c8051a41eccf]

Title  
A/Prof

First Name  
Maggie

Last Name  
Nolan

Organisation  
AustLit

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

A critical and self-reflexive approach to knowledge; this includes a fundamental understanding that data and information systems are not neutral and objective; nor are they merely technical. They are also historical, political, institutional, cultural etc. This requires an openness to revising, rethinking and repositioning data-driven infrastructure. This includes a deep understanding that data and information systems reshape and co-constitute the humans who build and interact with them.

Strategic thinking

Capacity to communicate and collaborate across disciplines

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Job security  
Competitive pay  
Clear career paths

A research environment that recognises the importance of and is committed to maintenance as well as innovation (so that people aren't dedicating time and resources to innovative projects that fall over because there is no plan for long-term sustainability).

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 198**

Mon, Dec 8, 2025, 11:55 AM Australian Eastern Daylight Time  
[ID: sbm39913672e3cc976b3c560]

Title  
Prof

First Name  
Melodie

Last Name  
McGeoch

Organisation  
Monash University

In what capacity are you responding?  
An individual

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Stability in investment in infrastructures, along with strategic enhancement to respond to changing priorities, building on existing capability.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 196

Mon, Dec 8, 2025, 11:53 AM Australian Eastern Daylight Time  
[ID: sbm39918bfa4ae528bc83a06]

Title  
Mr

First Name  
Ken

Last Name  
Mahon

Organisation  
Campus Plus Pty Ltd

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Regardless of technical expertise, the NRI workforce should possess:

- Cultural competency: Ability to engage respectfully with diverse communities, including understanding Indigenous knowledge systems.
- Data ethics and governance literacy: Skills to manage sensitive data responsibly and comply with Indigenous Data Governance principles.
- Collaboration and stakeholder engagement: Capacity to work across disciplines, sectors, and cultural contexts. Poses the ability to understand and embrace different styles and manage conflict in a positive way.
- Adaptability and innovation mindset: Comfort with emerging technologies and evolving research priorities.
- Communication and translation skills: Ability to convey complex research outcomes to policymakers, industry, and the public.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention Strategies:

- Provide long-term funding certainty to reduce job insecurity.
- Establish career pathways, including fellowships and mobility programs across facilities and sectors, this should also support transitions between academic and industrial settings.
- Foster inclusive workplace cultures that value diversity and wellbeing.

Capability Development:

- Invest in continuous professional development, including cultural competency, the “soft skills” and digital skills.
- Create secondment opportunities with industry and Indigenous organisations to broaden experience.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Support early-career researchers and technicians through structured mentoring and leadership programs.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 192

Mon, Dec 8, 2025, 11:44 AM Australian Eastern Daylight Time  
[ID: sbm3991835109e1f22c2f818]

Title  
Prof

First Name  
Simon

Last Name  
Ringer

Organisation  
The University of Sydney

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

A high-performing NRI workforce requires a shared foundation of skills that ensure safe, reliable, and impactful delivery of research capability across all domains. Critical cross-cutting skills include:

**1. Service orientation and user engagement**

Regardless of role, NRI staff must be able to work collaboratively with researchers, industry partners, and community stakeholders. Strong communication and user-support skills underpin efficient operations, high utilisation, and positive research outcomes.

**2. Data literacy and digital capability**

All NRI roles increasingly require a baseline proficiency in data management, FAIR principles, metadata standards, reproducibility practices, cyber-security awareness, and the ability to navigate digital research platforms, cloud environments, and workflow tools.

**3. Administrative mastery of enterprise and facility systems**

Specialist administrative staff play a vital role in enabling the productivity and innovation agenda of research infrastructure. This includes not only operational proficiency in facility management platforms, user-access and scheduling systems, and digital utilisation tracking tools, but also the ability to analyse and leverage the data these systems generate for reporting, planning, optimisation, and financial sustainability. Competence with enterprise finance, HR, and procurement systems is also essential for ensuring seamless operational support across complex facilities.

**4. Business development and research contracting literacy**

To support growing industry engagement, administrators and operations staff increasingly require skills in scoping, negotiating, and stewarding external engagements. This includes

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

working effectively with non-disclosure agreements, research services agreements, materials transfer agreements, and other contractual frameworks that enable responsible and efficient access to national research infrastructure. These skills help translate capability into real-world impact while maintaining trust and compliance.

**5. Risk management, safety, and compliance**

All NRI staff should have foundational competence in WHS principles, regulatory compliance, quality assurance, and ethical governance. This ensures safe operation and continuity across diverse facility environments.

**6. Interdisciplinary awareness and adaptability**

NRI facilities routinely support research spanning multiple disciplines. Staff benefit from an ability to understand diverse research methods and to adapt to evolving scientific and technological needs.

**7. Cultural competence and responsible research practice**

Skills in working respectfully with Indigenous knowledge systems, culturally diverse communities, and sensitive or sovereign data are essential. This includes awareness of ethical research frameworks, data sovereignty, and responsible AI practices when relevant.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

To ensure Australia's national research infrastructure (NRI) remains globally competitive, a coordinated national workforce strategy is required—one that supports retention, recognises specialised capability, and builds new skills aligned with emerging research and industry needs. Key elements include:

**1. Long-term, stable funding and employment models for technical and operational roles**  
Facility specialists, instrumentation scientists, engineers, data stewards, and administrative/operations staff require years to develop the deep expertise that enables safe, reliable, and innovative facility operation. Stable multi-year funding for these roles is essential to retain capability, reduce turnover, and maintain institutional knowledge.

**2. Career pathways and role recognition that reflect the distinctive nature of RI work**  
Traditional academic and professional staff classifications do not fully capture the highly technical, research-enabling work performed in many NRI environments. The Roadmap should consider whether a dedicated research-infrastructure staff classification or job-family would support clearer career pathways, appropriate KPIs, and consistent recognition across institutions. This proposal aligns with recommendations from the NCRIS Research Infrastructure Specialist Position Paper and emerging discussions across the sector.

**3. Continuous professional development and national mobility schemes**

Capability-building should include training in emerging technologies (AI-enabled instrumentation, digital twins, advanced automation, secure data workflows), as well as leadership, management, and user-support skills. Funded programmes for national secondments and inter-facility exchanges strengthen cohesion and spread best practice across facilities.

**4. Strengthened business-development and contracting expertise**

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

As industry engagement becomes increasingly central to national research and innovation agendas, NRI staff require training and support in managing external partnerships. This includes familiarity with non-disclosure agreements, research services agreements, material transfer agreements, data-sharing arrangements, and engagement pipelines to support external users.

**5. Inclusive workforce development, diversity, and succession planning**

Targeted recruitment and retention initiatives for under-represented groups – including Aboriginal and Torres Strait Islander researchers and technicians, women in technical fields, and early-career practitioners – will help ensure a robust and diverse talent pipeline. Structured professional development and succession planning are critical to long-term sustainability.

**6. Recognition of administrative and operations staff as research enablers – including facilitation of industry engagement**

Administrative and operations staff are indispensable to the effective functioning of NRI facilities. Their skills extend well beyond routine administration: they manage facility systems, coordinate complex logistics, support compliance and safety, and increasingly facilitate industry engagement by guiding external partners through contracting, access, onboarding, and service navigation. Retention and capability-building efforts should explicitly recognise these roles as integral to research outputs, facility utilisation, and national innovation outcomes.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 191

Mon, Dec 8, 2025, 11:42 AM Australian Eastern Daylight Time  
[ID: sbm399181b0e6cc91d7d78f6]

Title  
Prof

First Name  
Neena

Last Name  
Mitter

Organisation  
Charles Sturt University

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Across all technical domains, NRI staff will need:

- Judgement over time - the ability to distinguish augmentation from abdication when using AI tools; knowing when a task has effectively become “outsourced thinking”.
- Cognitive sovereignty - the capacity to stay in control of their AI use; retaining authorship of decisions and outcomes while working with increasingly autonomous systems.
- Epistemological literacy - understanding how knowledge is constructed, validated, combined and governed across disciplines (not just how to operate tools).
- Human-AI partnership skills - knowing when AI meaningfully extends human thinking vs when it displaces critical human work, and where human oversight is non-negotiable (e.g. ethics, contextual value judgements).
- Cultural sensitivity and capability to recognise and address the mechanisms of action of colonising practices in all research activities.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

- Career pathways that reward compounding capabilities - promotion and recognition frameworks that value judgement, long-term relationships, community trust and institutional knowledge, not only constantly “updating” technical skills.
- Deliberate development of “bridge” roles - funded positions for people who combine technical literacy with humanities/social-science/philosophy training, so they can work on meaning, ethics and governance as well as efficiency.
- Protected ‘unaugmented practice time’ - resourced time where staff deliberately work without AI to maintain core cognitive, experimental and design skills (the mental equivalent of physical conditioning), alongside time for AI-augmented experimentation.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 190

Mon, Dec 8, 2025, 11:38 AM Australian Eastern Daylight Time  
[ID: sbm39917d5b57e5cbf48ec6c]

Title  
Prof

First Name  
Sharon

Last Name  
Goldfeld

Organisation  
Murdoch Children's Research Institute

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

1. Being able to communicate clearly across sectors.
2. Willingness to share learnings across sectors
3. Willingness to collaborate, particularly across sectors.
4. Being able to both generate funds to leverage NRI and to consider how to scale findings for national and international benefit

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 189

Mon, Dec 8, 2025, 11:31 AM Australian Eastern Daylight Time  
[ID: sbm397d1f74f081103d31e33]

Title  
A/Prof

First Name  
Melanie

Last Name  
Rug

Organisation  
Centre for Advanced Microscopy-ANU

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Skills beyond scientific and technical expertise include:

- computational literacy: research data analysis requires a high-level of computer literacy in most disciplines around microscopy and microanalysis. Data analytics engineers are as important as instrumentation specialists in order to keep up with developments in AI and ML tasks and in establishing fast transfer and post-processing pipelines with national computational infrastructure like NCI and Pawsey,
- creativity and innovation: Competencies such as creativity, critical, strategic and innovative thinking will allow development of solutions for the new complexities in many research areas including microscopy and microanalysis where staff are regularly asked to find solutions in interdisciplinary projects that require skills in various microscopy techniques but also computational skills for processing highly complex data,
- communication skills: teaching the next generation of specialists across NRI disciplines is paramount to retain the expertise and build on role models with collegial spirit and networking capabilities ,driving world-class research support that will become more and more complex, interdisciplinary and multi-modal, relying on networks of collaborators.
- intercultural management skills: ability to lead, motivate and manage multi-cultural teams and individuals towards delivering high-quality results.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Offering clear career paths with promotion opportunities based on merit. ANU has been one of the Go8s who have introduced a specialist scheme for staff who perform roles that require unique skill sets that are beyond the KPIs of a traditional technical role. These staff develop new methodologies, instrumentation, workflows or processing pipelines and are collaborators on many projects often resulting in essential contributions to publications, evidenced by e.g. authorships, patents etc.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 188

Mon, Dec 8, 2025, 11:31 AM Australian Eastern Daylight Time  
[ID: sbm399177758be17ce51a318]

Title  
Prof

First Name  
Michael

Last Name  
Haugh

Organisation  
Language Data Commons of Australia (LDaCA)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Ability to work with researchers in different research domains and respect for communities when the data is from, by or about those communities.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

It is imperative to develop distinct categories of employment for "platform academics" or "prac-academics" who develop research infrastructure, in addition for RI professionals who maintain infrastructure. It is also important to consolidate funding to ensure the NRI workforce is not working in isolation but in clusters of excellence.

# 187

Mon, Dec 8, 2025, 11:25 AM Australian Eastern Daylight Time  
[ID: sbm399171bf4accf9bb10033]

Title  
Dr

First Name  
Nian

Last Name  
Jiang

Organisation  
Astralis

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

To ensure NRI functions as a national engine for discovery and translation, Australia's research infrastructure workforce must possess skills that extend beyond deep technical expertise to enable the translation from discovery to productivity and national benefit, accelerate research-to-industry pathways, and maximising sovereign return on investment:

- Systems thinking and integration skills – the ability to understand how components interact within a complex technical and organisational environment. Skills in requirements definition, trade-off assessment and whole-of-system optimisation are essential for infrastructures that span facilities, disciplines and stakeholders.
- Project and program management skills across the R&D pipeline – competence in planning, risk management, prototyping, scheduling and resource coordination from proof-of-concept to concept design, testing, manufacturing and deployment. These skills enable research infrastructure to mature technologies, not just host experimentation.
- Stakeholder and collaboration skills – capacity to work effectively across multi-institutional consortia, research organisations, government and industry partners. Large-scale national facilities demand people who can bridge cultures, expectations and timelines to achieve shared outcomes.

These skillsets are impart an acknowledgement of the full economic cost of research outside of core technical and scientific expertise. It is rarely properly supported or acknowledged in research opportunities. By necessity, these skills are well-developed and actively exercised within Astralis – funded under Astronomy Australia Ltd (AAL) – through the delivery of advanced, bespoke scientific instrumentation. Astralis routinely integrates cutting-edge technologies into complex operational systems, addressing challenges spanning astronomy, space, quantum and national security. This capability provides a strong foundation, with appropriate support, for national workforce development and skill transfer across the NRI system.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Australia will only realise full value from its research infrastructure if its workforce is actively nurtured, retained and expanded. A strategic approach is needed to support career pathways, develop critical skills, and ensure scientific discovery can be translated into sovereign capability and national benefit. Recognising the critical research adjacent skills such as project management, professionalised outreach and communication) and the true cost of robust software etc. is essential, yet these are often overlooked by most research opportunities where they are considered as ‘not directly related to the research activities’.

Astralis recommends an NRI skills strategy modelled on the UK Technical Commitment, which explicitly recognises the research infrastructure workforce as an essential capability. The strategy should support both deep technical specialisation and cross-disciplinary integration skills that connects expertise across facilities, disciplines and sectors. These integrative skills – systems thinking, program delivery, commercialisation awareness – are often the critical missing link between discovery and impact. Building them deliberately is essential if NRI is to convert research excellence into productivity, sovereign capability and economic return.

Note, these skills are highly sought after by industry and international organisations, creating strong global competition for talent. However, baseline, ongoing support for the NRI workforce is currently lacking, resulting in avoidable churn, loss of critical capability, and weakening of national competitive advantage. Sustained baseline investment is critical to nurture, retain and attract the skilled personnel that underpin NRI impact, ensuring the workforce remains stable, future-ready and able to deliver world-class outcomes for Australia.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 186

Mon, Dec 8, 2025, 11:23 AM Australian Eastern Daylight Time  
[ID: sbm399136e2b1e140a7d663d]

Title  
A/Prof

First Name  
Melanie

Last Name  
Rug

Organisation  
Australian Microscopy and Microanalysis Society

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Internationally, Australia is highly regarded for the focus on skilled workforce expertise for nearly two decades, and long-term investment through NCRIS on staff is regarded as key in the national research infrastructure eco-system.

Skills of NRI staff that are critical, beyond their scientific and technical expertise include:

- Outstanding communication skills: teaching the next generation of specialists across NRI disciplines to engage effectively with researchers and industry is paramount to retain a national skilled workforce that builds on role models with collegial spirit and networking capabilities. The collaborative nature of work undertaken within NRI-funded facilities requires staff who can partner constructively with users. Funding initiatives like ‘train-the-trainer’ courses and workshops that promote a national standard for professional development in this area is crucial for delivering world-class research support that will become increasingly complex, interdisciplinary and multi-modal, relying on networks of collaborators.
- Intercultural management skills: ability to lead, motivate and manage multi-cultural teams and individuals towards delivering high-quality results as these staff frequently engage with students and staff from multi-cultural backgrounds.
- Computational literacy: research data analysis requires a high-level of computer literacy in most disciplines around microscopy and microanalysis. Data analytics engineers are as important as instrumentation specialists to keep up with developments in AI and ML tasks and in establishing fast transfer and post-processing pipelines with national computational infrastructure like NCI and Pawsey.
- Creativity and innovation: competencies such as creativity, critical, strategic and innovative thinking will allow development of solutions for the new complexities in many research areas including microscopy and microanalysis where staff are regularly

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

challenged to find solutions in interdisciplinary teams and projects that require skills in multiple microscopy and microanalytical techniques but also computational skills for processing highly complex data.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Skilled workforce attraction and retention should be supported through clear, nationally recognised, and consistent career pathways for NRI personnel. This requires alignment across NRI/NCRIS nodes in how promotion is handled for both academic-leaning and professional-leaning staff. Some universities, such as ANU, UMelb, and UQ, have addressed this by introducing a third staffing stream (specialists or research platform scientists) who sit between traditional academic and professional roles. These positions improve job satisfaction because they allow progression based on merit that is not tied solely to academic KPIs, nor dependent on rewriting professional staff roles to enable advancement. These staff develop new methodologies, instrumentation, workflows or processing pipelines and are collaborators on many projects often resulting in essential contributions to publications, evidenced by e.g. authorships, patents etc. In addition, the NRI should establish national standards for KPIs for these positions. This would allow high-performing staff to be consistently recognised and rewarded, while also helping to identify when expectations are not being met.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 185

Mon, Dec 8, 2025, 11:23 AM Australian Eastern Daylight Time  
[ID: sbm399170315ee119491fd00]

Title  
Mr

First Name  
Dale

Last Name  
Holland

Organisation  
The Australian National University

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Ability to build relationships, building and leading communities, and supporting new and novel applications with the spirit of innovation and continual improvement.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Human capital is the most important investment in the NRI system, and improvements to the career paths and job security for the NRI workforce will boost effectiveness, innovation and productivity, and reduce brain drain of highly specialised expertise.

Career development is essential. Acknowledging career development and training as a cross-cutting National need will support decisions made in future that benefit the workforce and therefore the NRI ecosystem. NRI personnel often have rare skillsets and knowledge and could take on a greater role in broader training of the national workforce and future workforce if operational funding supported this.

We are finding it increasingly difficult to fill technical positions in capabilities where students may not have exposure to work in technical environments or had sufficient training. Investing in placement programs or training outreach may be part of a solution.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 184

Mon, Dec 8, 2025, 11:16 AM Australian Eastern Daylight Time  
[ID: sbm399168a9b1e57492267b5]

Title  
A/Prof

First Name  
Ron

Last Name  
Hackney

Organisation  
Australian and New Zealand International Scientific Drilling Consortium (an AuScope project)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The skills that matter most are the ones that let people work together across every kind of boundary we have in this country: disciplinary, institutional, cultural, geographic, and sectoral. Skills in the following areas would be particularly beneficial:

Interdisciplinary translation: the ability to explain your instrument, dataset, or sample to someone who has never seen it before, whether they are a Traditional Owner, a Year 8 student, a Treasury analyst, or a miner in the Pilbara.

Cultural competence and humility, especially in working with Aboriginal and Torres Strait Islander knowledge-holders and communities. Every NRI facility sits on someone's Country. Every dataset touches someone's story.

Adaptive leadership in uncertain environments to build a resilient workforce and country. These are the skills Australia needs for every future crisis.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

NRI technicians, professionals and academics are national assets and should be recognised as such! NRI capability depends on highly trained and highly specialised personnel at every stage—design, operation, data processing, fieldwork, cultural liaison, interpretation, and translation into policy, industry and community outcomes. A properly supported NRI workforce is how we turn world-class facilities into world-changing outcomes.

A key option that would contribute to improving staff retention and building new capability is to set up central support for secondments and exchange pathways to and

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

from industry, government, and Indigenous academics and other organisations (e.g. NGOs).

It could be helpful to ring-fence funding for people, not just the infrastructure. Perhaps a fixed percentage of every major NRI grant should be reserved for salaries, training and succession planning? This would help reduce the feeling that our brilliant people are working for passion alone.

Funding for genuine career pathways would assist early-career researchers, especially within the context of impending ARC grant changes (by the time an ECR sets up their lab, their funding will finish).

The recently released Australian Academy of Science Report “Our Science, Our Future”, which highlights that “skills and expertise must keep pace with our growing scientific ambitions”, is likely to contain important guidance in establishing NRI workforce strategies. For example, the report highlights disciplines that will or are likely to have significant capability gaps in the near future (e.g. “We aren’t training enough geoscientists, yet our economy rests heavily on resources, and ‘Critical Minerals’ is a priority...”).

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 183

Mon, Dec 8, 2025, 11:07 AM Australian Eastern Daylight Time  
[ID: sbm3991613a7de541176e92f]

Title  
Ms

First Name  
Toni

Last Name  
Moate

Organisation  
Marine National Facility - CSIRO

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Emerging Artificial Intelligence skills will be fundamental to all workforces over the next decade, and investment in this area is lacking for most organisations. A recent report from McKinsey (January 2025) identified that only 1% of organisations believe they are ‘at maturity’ when it comes to investment and incorporation into business practices with regards to AI and its ethical use. This is clearly the highest priority for critical skills development that cuts across all sections of the NRI workforce, regardless of expertise.

Critical cross-cutting skills to ensure infrastructure is effective, inclusive and future ready include governance and ethical stewardship. Strong collaboration and stakeholder engagement skills (e.g. co-design and partnership building), cultural competence and inclusion, basic data literacy and policy literacy.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Confidence in continuity of NRI funding is fundamental for retaining and investing in the NRI workforce. Uncertainty over NCRIS and other infrastructure funding has factored into staff decisions on moving into other industries. As the sector is increasingly focused on digital capabilities, we are often competing with sectors that have many incentives that we can’t compete with. The incentive of working for the ‘public good’ is often fundamental for our workforce. However, if job security is lacking, operators struggle to attract the best talent.

Adding to new capabilities is largely dependent on the same principles. Certainty of continued investment in our workforce is the single most contributor to adding capability. The ability to offer indefinite or at a minimum three-year term positions is essential for attracting new talent. In most areas, the talent we need is available; we will always have

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

to conduct some in-house training for new capabilities, and we believe that rests best within NRI facilities due to the unique nature of each, rather than a whole of NRI approach. Current uplift opportunities within NRI funding should continue to be supported and utilised where there is a major change in capability required within a sector.

The Marine National Facility values the diversity of experience that we get through current workforce additions where we see new staff come from a wide variety of industry and research backgrounds and see limited benefit in sector-wide training and development approaches across the NRI workforce, apart from the area of Artificial Intelligence as noted above.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 181

Mon, Dec 8, 2025, 10:39 AM Australian Eastern Daylight Time  
[ID: sbm398da85188f03df1b7905]

Title  
Prof

First Name  
Alastair

Last Name  
Stewart

Organisation  
ARC Industry training Centre for Micropysiological Systems Technology

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
generically important skills include, effective oral and written communication to support NRI mission  
higher degree preferably PhD with capability to apply policy to access to infrastructure and to promote such access in an equitable manner across the research community  
ability to reshape the infrastructure in a time frame that is responsive to rapidly changing research environment

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
job security  
promotion opportunity  
competitive salary  
new capabilities may be delivered by micro-credentialling, immersive experience  
:strategic sabbatical and/or staff exchange

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 179

Mon, Dec 8, 2025, 10:30 AM Australian Eastern Daylight Time  
[ID: sbm39913f1a31ccd6b84653c]

Title  
Dr

First Name  
Judith

Last Name  
Bishop

Organisation  
La Trobe University - School of Humanities and Social Sciences

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Ability to translate between knowledge silos and break down disciplinary barriers; the ability to understand that technical expertise is not an end in itself, but works in service of human aspirations and human goals, which do not always align with the too common formulation that technical tools and expertise = increased productivity. The NRI workforce should be trained in service leadership.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Develop mentoring structures where existing staff can transfer their invaluable knowledge to new staff, who will bring these new capabilities, while growing in their own jobs and learning to adopt these new capabilities as well. Mentoring is a two-way learning journey and it supports both retention of existing staff, who feel their knowledge and experience are valued, and the upskilling of new staff members.

2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation  
Issues Paper Consultation Survey  
Department of Education

# 178

Mon, Dec 8, 2025, 10:26 AM Australian Eastern Daylight Time  
[ID: sbm39913b9869cc85c02017d]

Title  
Dr

First Name  
Gillian

Last Name  
Brown

Organisation  
Council Heads of Australasian Herbaria

In what capacity are you responding?  
A representative of an organisation or group

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Australia is a mega biodiverse continent with many species found nowhere else. It is estimated that over 70% of our species are undescribed, and over 40% are found nowhere else. Substantial growth in the trained taxonomic workforce is needed to address the “taxonomic impediment”, whereby investment into the taxonomic workforce has been inadequate and as a result a comprehensive inventory of Australian species is not available, which places many species at risk of extinction before they are even described. To retain a skilled taxonomic workforce, employment continuity and grant funding that is sufficient to support ongoing taxonomic research targeting required taxonomic expertise is essential. Funding for taxonomic research has remained static over the last decade and federal grant funding allocation is not sufficient for employment of post-doctoral researchers, who have the necessary field- and collection-based research skills alongside the bioinformatic and data analytical skills necessary to work with large genomic datasets that are standard for taxonomic and systematic research.

Australia’s biological collections are a remarkable national asset; however, their full benefit is not currently realised due to the lack of national workforce coordination, capacity limitations on curation staff due to a reliance on short-term funding for curation and digitisation projects. The bioinformatic and digitisation requirements of collections have advanced rapidly in the last decade. However, the current workforce has limited capacity for uptake of the rapidly advancing technologies being applied in the biological collections field globally. A highly trained workforce with diverse expertise in collections management, digitisation, genomics, taxonomy and biobanking is required to maximise mobilisation of and access to collections-based data to meet national research and science priorities. A national training program targeting the collections sector would increase data mobilisation and curation capacity and achieve a nationally consistent approach to adoption of these technology-based advances. Technical specialist courses are needed to facilitate engagement with these technologies, to enable training of early career curators

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

and technical staff, and to facilitate upskilling of current staff in enable adoption of new and emerging technologies. To enable Australian leadership in the development of ‘digital extended specimen’ protocols, a national approach is needed to develop the technical standards, digital documentation, and metadata management tools required to facilitate global access to Australian collections data.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 177

Mon, Dec 8, 2025, 10:22 AM Australian Eastern Daylight Time  
[ID: sbm3991384dd5e58028804c5]

Title  
A/Prof

First Name  
Roger

Last Name  
Osborne

Organisation  
Association for the Study of Australian Literature

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce should have critical skills that foster a genuine engagement with the moral and ethical challenges of data collection and analysis. These critical skills will enable collaboration across disciplines that better articulates the value of the NRI at every step of the research process. In this way, evaluating not only the technical outcomes, but also the cultural and epistemological outcomes will provide better guidance for new and emerging researchers involved in current and future NRI.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

1. Job security and clear career paths
2. Competitive pay aligned with industry.
3. Research environments that foster and reward critical and creative thinking

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 176

Mon, Dec 8, 2025, 10:10 AM Australian Eastern Daylight Time  
[ID: sbm3972646aefcbbc4e2b08d]

Title  
Prof

First Name  
Daniel

Last Name  
Angus

Organisation  
ARC Centre of Excellence for Automated Decision Making & Society

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce needs a shared foundation of skills that cut across technical domains, beginning with strong capabilities in collaboration, communication and interdisciplinary translation, being able to work effectively with researchers, communities, industry partners and decision-makers. They must also have a clear understanding of ethical, legal and cultural responsibilities, including privacy, data governance (especially Indigenous data sovereignty), and the social impacts of research infrastructure. Core competencies in project management, user-centred design, and adaptable problem-solving are essential, as is the ability to engage with rapidly evolving digital systems even if they are not technical specialists. Finally, the workforce needs a commitment to openness, reproducibility and accessibility, ensuring that NRI investments serve national, community and public-interest goals.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

The most effective way to retain staff and build new capabilities in the NRI workforce is to move beyond short-term, project-bound employment and toward a national, stable workforce model that offers long-term security, mobility and professional agency. Retention depends on giving skilled staff predictable career pathways, portable roles across facilities, and the freedom to apply their expertise where it has the greatest impact. This means embedding multi-year funding cycles, creating nationally recognised career structures, and supporting secondments, cross-facility exchanges and interdisciplinary training so staff can grow rather than churn. When NRI workers have stability, clear progression, and the ability to choose how and where they contribute, Australia not only retains talent but cultivates the adaptable, future-focused capability needed to support a resilient research infrastructure system.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 175

Mon, Dec 8, 2025, 10:04 AM Australian Eastern Daylight Time  
[ID: sbm399126fb91e52e229ab14]

Title  
Dr

First Name  
Tom

Last Name  
McGoram

Organisation  
Heavy Ion Accelerators

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce needs a large range of professional skills beyond specific technical domains. These include project management, financial management and accounting, strategy and planning, customer service, marketing and communications. Literacy in rapidly emerging domains such as areas such as AI and machine learning are also of increasing importance. Evidence of the need for these skills and others has been gathered by the Academy for Collaborative Research infrastructure (ACRI): HIA supports ACRI's findings.

More generally, supported by NCRIS mechanisms, their host institutions and local management, all members of the NRI workforce should have the confidence and skills to develop their own professional networks across NRI providers (not only NCRIS) to encourage the sharing of expertise and to enhance workforce mobility and help build a seamless NRI ecosystem.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

A coordinated, multi-pronged approach is required:

1. Strengthen the role of host institutions in stewarding the NRI workforce.

Where NRI staff are employed within tertiary institutions, NCRIS should emphasise the critical responsibilities of host organisations, including broader adoption of initiatives such as the Technician's Commitment.

- Universities often lack clarity about which staff contribute to NRI activities and how their salaries are funded, leading to decisions on restructuring or reassignment that do not fully account for their national role.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Agreements between NCRIS and Lead Grant Agents should require consultation with NCRIS Directors and/or the Department of Education before actions affecting NCRIS-funded personnel—such as redeployment, reassignment or voluntary redundancy—are taken.

2. Implement the Research Infrastructure Specialist (RIS) Job Family across the sector. Sector-wide adoption of the RIS Job Family is essential to give RI staff clear identity, appropriate recognition, and parity with established academic and professional streams.

3. Improve attraction and retention of skilled RI personnel. National-level incentives—including professional development, fellowship programs, and recognition and reward frameworks—are needed to retain expertise and support career progression beyond what individual providers or host institutions can offer.

4. Reassess pathways for recruiting overseas specialists. Existing mechanisms for bringing in professional staff where domestic expertise is limited should be reviewed to identify and remove barriers.

- While visa subclasses for specialist staff exist, salary thresholds are often misaligned with university pay structures. In addition, many universities remain reluctant to sponsor visas for non-academic staff—a cultural barrier that must be addressed to enable progress.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 173

Mon, Dec 8, 2025, 09:49 AM Australian Eastern Daylight Time  
[ID: sbm39911a1ff7e15a45fd1fb]

Title  
Mr

First Name  
Anupam

Last Name  
Pilli

Organisation  
The Australian National University Institute for Space

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

- User-facing capability: clear communication, project scoping, and translation of user needs into serviceable workflows.
- Data stewardship and integrity: competency in secure data management, interoperability, and FAIR principles.
- Collaboration and coordination skills for operating in distributed, multi-institution national networks.
- Problem-solving and systems thinking, enabling rapid navigation of technical, regulatory, and operational constraints.
- Commercial awareness to engage industry users, understand timelines, and support translation pathways.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

- Provide long-term operational funding certainty, ensuring highly specialised technical roles are not dependent on short project cycles.
- Attract and retain staff with industry-relevant expertise—including mission assurance, certification, systems engineering, and advanced testing.
- Invest in continuous professional development tied to emerging standards and technologies, ensuring capability remains globally competitive.
- Strengthen national coordination mechanisms to share training, workforce planning, and technical expertise across institutions and NCRIS operators.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 169

Mon, Dec 8, 2025, 08:55 AM Australian Eastern Daylight Time  
[ID: sbm3990e87efacccc0aad251]

Title  
Prof

First Name  
Coral

Last Name  
Warr

Organisation  
La Trobe University

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills should include those that would be required to operate a business:

- Stakeholder management collaboration and teamwork skills to manage client expectations, work effectively in multidisciplinary teams across institutions and sectors and to build trust and foster inclusive environments.
- Project and program management including familiarity with governance frameworks and compliance requirements, risk management, planning, prioritization and resource management.
- Data literacy and digital competence including research data management skills and principles (FAIR and CARE), cybersecurity and privacy standards, and use of digital tools, such as AI. In addition, the capacity to understand the nuance and variation in the data that is being used. This includes an understanding of the ethical implications of how data is stored, shared and analysed, and the importance of how to work with sensitive data from vulnerable populations.
- Communication, leadership and influence skills to advocate for resources, enable workforce development, to become role models, communicate complex ideas to a range of audiences, ability to train the next generation of users.
- Understanding of the political and sector landscapes with the ability to adapt to a changing environment including, political, financial, etc.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

- Establish clear career pathways with defined roles and titles for staff that operate in the 'third space' between academic and professional colleagues.
- Ensure staff feel valued for their contributions by highlighting how their work contributes to research outcomes and national priorities, supporting proper remuneration

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

and creating communities of practice such as the relatively new Academy for Collaborative Research Infrastructure (ACRI) and sponsoring staff membership.

- Provision of training and other professional development opportunities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 168

Mon, Dec 8, 2025, 08:50 AM Australian Eastern Daylight Time  
[ID: sbm3990e4457ee562298dc0b]

Title  
Dr

First Name  
Lisa

Last Name  
Yen

Organisation  
Microscopy Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce must possess a blend of technical, digital, managerial, pedagogical, and interpersonal skills to ensure the effective operation and evolution of national research infrastructure. Based on Microscopy Australia's experience, most staff enter these roles from research backgrounds, often as PhD students or early career researchers. While this provides a strong foundation in scientific and technical knowledge, these individuals are frequently thrust into positions that demand a much broader skill set with little structured support for acquiring these new skills, leaving many to learn through trial and error on the job.

To address these challenges, Microscopy Australia has engaged in several international and local initiatives. Delivered in partnership with Global BioImaging, the Facility Managers Courses focus on the managerial and soft skills required to successfully run research infrastructure. Additionally, Train-the-Trainer workshops equip staff with essential pedagogical skills for designing and delivering effective training, regardless of the specific technique or discipline. Finally, the job shadowing program allows NRI staff to travel to highly regarded research infrastructures around the world to learn best practices to bring back to their own facility, including opportunities to engage across NRI providers.

Drawing on these experiences, several core skill areas regardless of technical expertise have been identified as essential for Microscopy Australia's NRI staff:

- Training and mentoring: Staff must be able to deliver effective training and support to users, develop course content and materials, and mentor junior colleagues. Programs like the Global BioImaging Train-the-Trainer course and MyScope online modules are central to building these capabilities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Leadership: Skills in strategic planning, business development, marketing, tracking and measuring facility impact, and fostering an empowering and productive team culture are vital for those leading core facilities.
- Management and operations: Competence in conflict resolution, contract negotiation, procurement, intellectual property management, operational workflows, budgeting, financial management, recruitment, booking systems, metrics capture and visualisation, time management, and prioritisation is essential for smooth facility operations.
- Communication and collaboration: Strong communication skills are necessary for working across disciplines, engaging with diverse user groups, and collaborating nationally and internationally. This includes the ability to translate complex technical concepts for non-specialist audiences such as industry clients, government, and university stakeholders.
- Adaptability and continuous learning: The ability to adapt to new technologies, methodologies, and evolving user needs is crucial. Ongoing professional development - particularly support to access international knowledge exchange and community-building opportunities such as job shadowing, masterclasses, workshops, and conferences - is vital to fostering this. This need is especially acute because, despite being highly regarded scientists in their own right, most NRI staff do not have access to grant funding to support participation in such opportunities in the way academic staff do. As a result, without targeted support, many NRI professionals may miss out on critical learning and networking experiences that are fundamental to staying at the forefront of research and innovation. Consequently, the latest knowledge is not disseminated to Australian researchers during the experimental design and user training stages.
- Digital and data literacy: Staff must have solid understanding of best practices in data management and analysis, and know how to engage with providers to establish robust infrastructure and systems within their facilities. They also need a strong grasp of managing, analysing, and interpreting complex datasets - including through AI-enhanced image analysis - to help users answer research questions in an increasingly data-driven environment. Familiarity and implementation of FAIR principles, metadata standards, and data reuse and repository management is also essential.
- Support for experimental design: A key skill for NRI staff is being able to support Australian researchers and industry in experimental design, ensuring that projects are set up for success from the outset and that infrastructure capabilities are fully leveraged to advance research outcomes.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

To retain staff and add new capabilities to the National Research Infrastructure (NRI) workforce, a multi-faceted approach is required that recognises the unique roles and contributions of NRI staff, supports their career development, and ensures long-term operational stability.

Key areas include:

- Recognition, classification and mobility: Establish tailored classifications for NRI roles to accurately reflect their unique contributions and enable clear performance measures and career pathways. Promote consistent frameworks across universities and research institutions for staff recognition and career development, ensuring standardised opportunities for advancement and professional growth sector-wide.
- Long-term funding and job security: Provide long-term funding and certainty for both infrastructure operations and workforce. Job security is a critical factor in attracting and retaining highly skilled staff, who often have opportunities in other sectors or overseas.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Professional and leadership development: Provide structured training and mentoring programs to build professional and leadership skills, supporting both career progression and workforce capability.
- Scientific and technical development: Support NRI staff to participate in knowledge-exchange opportunities such as job shadowing, masterclasses, workshops, and conferences. Targeted support for travel and registration is essential, as most NRI staff lack access to grant funding for these activities. This enables expert staff to engage with their peers internationally, share experience, receive recognition of their achievements as scientists, and bring the latest techniques and insights back to Australia, ensuring our research infrastructure remains globally competitive and researchers benefit from cutting-edge expertise. This includes providing staff with time in their jobs to innovate and try out new applications or techniques.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 166

Mon, Dec 8, 2025, 04:17 AM Australian Eastern Daylight Time  
[ID: sbm398ef443d9f07b3c19411]

Title  
Dr

First Name  
Beryl

Last Name  
Morris

Organisation  
TERN Australia

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Drawing on TERN's experience operating distributed infrastructure across diverse landscapes and communities:

Foundation skills (essential for all NRI workforce)

1. Indigenous cultural awareness and competency: understanding of Aboriginal and Torres Strait Islander knowledge systems, data sovereignty principles, and culturally appropriate research practices
2. Data management literacy: understanding of FAIR and CARE principles, metadata standards, and long-term data stewardship responsibilities
3. Collaboration and communication: ability to work effectively across disciplines, sectors, and with diverse stakeholder groups including researchers, industry, policymakers, and communities
4. Ethical research practice: understanding of research ethics, informed consent, privacy, and cultural protocols
5. Systems thinking: ability to understand how their infrastructure contributes to broader research ecosystems and national priorities

Emerging critical skills

6. AI and computational literacy: basic understanding of how AI, machine learning, and advanced analytics can enhance research infrastructure capabilities and impact
7. Translation and impact orientation: skills in communicating infrastructure capabilities to potential users, demonstrating value, and facilitating research-to-application pathways
8. Adaptability and continuous learning: willingness to update skills as technologies and research paradigms evolve

Leadership-level skills

9. Strategic foresight: ability to anticipate emerging research needs and position infrastructure accordingly
10. Interdisciplinary fluency: capacity to bridge technical, scientific, social, and cultural domains

#### Cross-domain fluency and model literacy

TERN's 2025 Research Directions Survey (181 responses from Australia's ecosystem science community) identified an emerging workforce need: researchers who can work effectively across modelling traditions. As ecosystem science increasingly integrates with climate models, socio-economic frameworks, genomic analyses, and remote-sensing systems, NRI staff need baseline fluency in multiple modelling cultures, understanding assumptions, scales, and uncertainty treatments well enough to recognise when cross-domain integration is valid.

This doesn't require new disciplinary specialisations but rather "speaking enough climate, enough economics, and enough genomics to collaborate effectively." Critically, respondents noted integration will succeed only when models, not just data, align, requiring attention to model coupling, co-designed pipelines, and decision-support systems that genuinely incorporate multiple domains. NRI workforce development should therefore include training in model interoperability, not just data interoperability.

These skills complement rather than replace technical and disciplinary expertise. Investment in professional development programs that build these capabilities across the NRI workforce will enhance Australia's research infrastructure impact and resilience.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

TERN's experience suggests a multi-pronged approach.

#### Retention strategies

1. Secure, long-term funding commitments: the single most critical factor. Short-term contracts undermine career planning and organisational knowledge retention. NCRIS funding should support multi-year employment contracts aligned with infrastructure operational requirements
2. Clear career pathways and recognition: develop nationally recognised career frameworks for research infrastructure professionals, with progression pathways comparable to academic research positions. Include infrastructure contributions in research assessment frameworks
3. Competitive remuneration and conditions: benchmark salaries against comparable industry and research positions. Provide flexible working arrangements recognising the demands of field-based and operational roles
4. Professional development and skill enhancement: dedicated funding for training, conference attendance, international exchanges, and capability development
5. Meaningful work and impact: ensure staff understand how their contributions support national research priorities. Celebrate and communicate infrastructure impacts

#### Adding new capabilities:

1. Strategic workforce planning: map emerging infrastructure needs against current workforce capabilities to identify gaps requiring targeted recruitment or training

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

2. Partnerships with universities and training organisations: develop vocational and postgraduate programs producing graduates with NRI-relevant skills (data management, field operations, advanced instrumentation)

3 Industry and international exchanges: structured secondment programs enabling staff to gain capabilities from commercial sector and overseas infrastructure organisations, then return to Australian NRI with enhanced skills

4. Early career opportunities: create research infrastructure PhD scholarships and postdoctoral fellowships positioned as legitimate career paths, not just academic stepping stones

5. Diversity and inclusion initiatives: actively recruit from under-represented groups, including Aboriginal and Torres Strait Islander peoples, ensuring diverse perspectives inform infrastructure development and operations

**Cross-cutting enabler**

Establish an NRI Workforce Development Fund supporting mobility, exchange programs, professional development, and strategic recruitment across the sector. This would enable individual infrastructure organisations to access specialist capabilities without requiring all to maintain every expertise in-house, whilst building collective workforce resilience.

TERN's continental-scale operations require workforce distributed across remote and regional Australia. Retention in these contexts additionally requires investment in community engagement, appropriate support for staff working on Country, and recognition of the unique value that field-based research infrastructure professionals bring to Australia's research capability.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 165

Mon, Dec 8, 2025, 01:07 AM Australian Eastern Daylight Time  
[ID: sbm398f3bd937a6b79f69d8f]

Title  
Dr

First Name  
Nicholas

Last Name  
Condon

Organisation  
The University of Queensland

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce should possess a broad set of transferable skills that enable effective support of research programs and researcher communities, alongside experience participating in or conducting research. Core capabilities should include proficiency in data handling, computational workflows, analysis, and the communication and presentation of research outputs relevant to each NRI's activities.

Workforce members should remain current with emerging global trends in research methods and infrastructure, supported through mechanisms such as fellowships, professional development opportunities, travel support, and participation in national and international workshops, conferences, and symposia. In particular, capability in artificial intelligence is becoming increasingly important across disciplines and should be embedded as a foundational skill area.

Equally essential is competence in quantitative analysis and data interpretation. The increasing expectation for robust, reproducible research means qualitative outputs alone are no longer sufficient; a sound understanding of statistics and data validation is critical to maintaining research quality.

The workforce should also demonstrate strong knowledge of research data management practices, including the application of FAIR data principles and adherence to institutional, national, and discipline-specific data management policies. Emphasis should be placed on data sharing, documentation, and standards compliance to enable transparency, interoperability, and long-term reuse of research outputs.

Given their significant role in training and supporting the next generation of Australian researchers, the NRI workforce should also demonstrate strong skills in education, training

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

delivery, mentoring, and assessment, ensuring effective knowledge transfer and capacity building across the research sector.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention and capability development of the NRI workforce requires coordinated national action addressing employment frameworks, recognition, funding access, and professional development. Many NRI personnel are not employed under academic streams, despite undertaking work that is fundamentally academic in nature, including research collaboration, method development, data analysis, and training. While progress has been made at the NCRIS facility level, employment classifications remain inconsistent nationally and even within institutions. This misalignment can limit access to competitive funding schemes, industry partnerships, and career advancement opportunities, despite the workforce being well positioned to contribute to such initiatives.

Formal recognition of contributions is also often lacking. In the absence of a consistent national authorship and acknowledgement policy, NRI workforce members may be excluded from appropriate publication recognition, including opportunities to serve as lead or senior authors on work derived directly from their intellectual contributions. This constrains career progression and diminishes retention.

Professional development support remains insufficient, with travel and training budgets frequently minimal or unavailable. As a result, many workforce members rely on opportunities provided through professional societies or organisations that they personally fund, creating inequity and limiting national capacity building.

There is also a significant disparity between domain experts supporting research infrastructure who are not formally classified as NRI staff and those employed within NRI facilities. This gap results in unequal access to funding, training, recognition, and development opportunities, despite these groups often performing overlapping or complementary roles.

Targeted national programs that provide access to fellowships, travel support, skills development funding, and formal participation in grant review and research assessment activities would strengthen retention, expand capability, and support sustained workforce development across the NRI sector.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 164

Sun, Dec 7, 2025, 11:41 PM Australian Eastern Daylight Time  
[ID: sbm398e90209751585595b03]

Title  
Prof

First Name  
Roslyn

Last Name  
Francis

Organisation  
Australasian Radiopharmaceutical Trials Network

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Scientific knowledge and experience, and understanding of data integrity and security relevant to the technical area of work. Knowledge of and practical implementation of collaborative networks and engagement with academic researchers and industry.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

In biomedical imaging: prioritise nationally accessible training and expertise to support imaging research, including pathways for combined clinical and research career pathways, technical expertise in image standardisation/harmonisation, radiochemistry, and imaging data/analytics.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 163

Sun, Dec 7, 2025, 10:32 PM Australian Eastern Daylight Time  
[ID: sbm398ea9b0b1a60df4b6d38]

Title  
Mr

First Name  
Mark

Last Name  
Stickells

Organisation  
Pawsey Supercomputing Research Centre (Pawsey) and the National Compute Infrastructure (NCI) through Prof Andrew Rohl

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
An understanding of the Australian research landscape and the role of NRI in supporting the achievement of research outcomes.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Retention of staff will be better achieved through offering flexible and accessible career pathways through and across the NRI landscape with the opportunity to grow and work across different areas. This will also benefit NRI more broadly through enabling the sharing of knowledge and skills across the NRI ecosystem. Engagement internationally and with industry, highlighting the opportunities and offerings of NRI, may lead to an enhancement in the current and new capabilities of the NRI workforce.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 159

Sun, Dec 7, 2025, 07:23 PM Australian Eastern Daylight Time  
[ID: sbm398e0183e751ea6b08ed2]

Title  
Dr

First Name  
Louise

Last Name  
Ludlow

Organisation  
Australasian Biospecimen Network Association (ABNA)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills that the NRI workforce should have regardless of their technical expertise:

- Data stewardship, governance and ethical literacy.
- Indigenous cultural competency and community engagement skills.
- Industry liaison, communication and collaboration capability.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

To retain staff and add to new capabilities, secure funding must be provided along with career pathways for specialist roles (e.g. Biobank managers, data stewards). Ongoing professional development in data governance, translation and community engagement must be funded. National workforce sharing and secondment programs need to be established.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 158

Sun, Dec 7, 2025, 07:03 PM Australian Eastern Daylight Time  
[ID: sbm398deed948518d4fe8bf4]

Title  
A/Prof

First Name  
Jennie

Last Name  
Hui

Organisation  
Busselton Population Medical Research Institute Inc

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills require includes those to bridge science, policy and practise while navigating risks, fostering cultural inclusivity and aligning diverse stakeholders' interests includes.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Create a system where individuals can see, shape, and celebrate the impact of their work. When staff witness their contributions, it fosters a strong sense of purpose and ownership, which is critical for long-term retention.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 157

Sun, Dec 7, 2025, 06:55 PM Australian Eastern Daylight Time  
[ID: sbm398de79a7d51500e5acc6]

Title  
Prof

First Name  
Alan

Last Name  
James

Organisation  
The Busselton Population Medical Research Institute

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Knowledge of the scientific method.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Listening to staff; straight-forward communication which avoids in-house jargon and acronyms; avoidance of loading expert staff with bureaucracy that prevents them carrying out duties they are trained for; supportive and collegial approach; respect at all levels.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 156

Sun, Dec 7, 2025, 05:24 PM Australian Eastern Daylight Time  
[ID: sbm398d948feda617e0fb91e]

Title  
A/Prof

First Name  
Branka

Last Name  
Miljevic

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

working with data based on FAIR principles (Findable, Accessible, Interoperable, Reusable), responsible data sharing and access controls; collaboration across disciplines, sectors and institutions (universities, government, industry), awareness of equity, inclusion and cultural capability, system thinking (i.e. understanding how their work fits into broader system and what are connections between domains); clear/effective communication and documentation (SOPs, data uncertainty), long-term thinking

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Creating NRI career streams (rather than short term contracts) and have clear progression pathway from early career to senior roles, ability for secondments, succession planning. Recruit internationally if needed. Incentives similar to EU "Choose Europe" for attracting international talent pool and Australians thinking about returning home.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 155

Sun, Dec 7, 2025, 05:21 PM Australian Eastern Daylight Time  
[ID: sbm398d913dc0f004ca459dc]

Title  
Dr

First Name  
Kieran

Last Name  
O'Brien

Organisation  
Siemens Healthcare Pty Ltd

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Communication, project management, strategic thinking relevant for a service manager

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Establishing substantial and meaningful career and or growth opportunities

Often technical roles can lack a structured career path trajectory that offers different promotional opportunities with distinct differences in responsibility and/or alternative avenues for growth if the technical path is not fulfilling the staff members evolving interests. If clear recognition of achievements are made this can also lead to dissatisfaction in the job role which make staff look for new opportunities adjacent to their current role. There is also a misguided expectation that career growth only comes with the direct management of people and/or large projects.

In fact that specialized research infrastructure that the NRI workforce invests into also demands very specialized expertise.  
Therefore career paths that highlight and promote the continued growth of that expertise should be explored. These should not just rely on "years of experience" but have a clear outline on how/what/where the workforce can acquire growth and perhaps these should be adjacent to the technical expertise area.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 154

Sun, Dec 7, 2025, 03:24 PM Australian Eastern Daylight Time  
[ID: sbm398d2652075171501e502]

Title  
Prof

First Name  
Wojtek

Last Name  
Goscinski

Organisation  
National Imaging Facility

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills for the NRI workforce extend beyond technical expertise.

Key skills include:

– Soft skills –

Communication, collaboration, and stakeholder engagement to support multidisciplinary and cross-sector research.

– Project Management –

The ability to deliver end-to-end projects—from scoping and planning through to execution, reporting, and continuous improvement—while managing time, risk, resources, and stakeholder expectations.

– Strategy and Planning –

Understanding how their research infrastructure fits within national and global research ecosystems, and aligning capability development with strategic priorities, emerging opportunities, and long-term national needs.

– Communication and Engagement –

The ability to clearly articulate capabilities, value propositions, and impacts to diverse communities—including researchers, clinicians, industry partners, policymakers, and the public—using language appropriate to each audience.

– Commitment to continuous development –

Research infrastructure operates in a rapidly evolving environment; the workforce must actively update skills and knowledge in response to new technologies, standards, and research needs.

– Business mindset –

Understanding translation pathways, intellectual property, and partnerships to enable impact and industry engagement.

– Quality and standards literacy –

Effective research translation depends on quality. Adoption of recognised standards such as ISO9001, ISO27001, ISO13485, ISO17025, GLP and GMP ensures reproducibility, trust and alignment with industry expectations. Building a workforce capable of implementing and maintaining these systems will attract investment and strengthen Australia’s ability to operate at higher TRLs.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention and capability growth within the NRI workforce depend on long-term stability, clear career pathways, and recognition of the specialised expertise required to operate national research infrastructure.

### 1. Promote NCRIS’s strategic advantage

NCRIS offers unique opportunities to work with cutting-edge technology and support nationally significant research translation. This strategic advantage should be actively promoted through a national marketing and engagement campaign that showcases career pathways, technological leadership, and the societal impact of NCRIS-supported work.

Raising awareness—particularly among early-career researchers, technical specialists, and industry—will strengthen recruitment and retention by positioning NCRIS as a premier career destination.

### 2. Provide long-term funding and employment stability

Sustained government commitment is essential. While five-year cycles are appropriate, NCRIS capabilities currently on received four years of substantive funding (RIIP) —with only two years remaining—which creates uncertainty for staff, limits strategic planning, and undermines the ability to retain talent. Many NCRIS capabilities, such as NIF, cannot operate effectively on baseline or NISA funding alone and depend on RIIP for operations.

Funding certainty is critical to maintaining core expertise, attracting new talent, and ensuring operational continuity. The impending expiry of current legislative settings adds uncertainty.

### 3. Invest in workforce development and recognition

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

A national NCRIS Fellowship Program should be established to recognise, develop, and retain high-performing technical and professional staff. A prestigious, merit-based fellowship would support career progression, elevate the profile of research infrastructure expertise, and foster collaboration across NCRIS capabilities.

**4. Support structural reform and sustainable career pathways**

Universities and research organisations should be encouraged and incentivised to adopt staffing structures and progression frameworks that reflect the unique skills of research infrastructure professionals. Clear, recognised career pathways will improve retention and ensure Australia can maintain and grow a highly skilled NRI workforce.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 152

Sun, Dec 7, 2025, 10:20 AM Australian Eastern Daylight Time  
[ID: sbm398c1064965170f3eef56]

Title  
Dr

First Name  
Scientific Services

Last Name  
at QIMR Berghofer

Organisation  
QIMR Berghofer

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce excels at technology and is always at the forefront of innovation. However, supporting workforce training and professional development including management skills may help promote adaptability and agility.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

The NRI roadmap should actively support realistic funding models for researchers who use the critical infrastructure environment. Developing Australia's technical capabilities without supporting strong research capabilities, and vice versa, is counterproductive. We need a supportive environment that promotes technology and technical skills together with skills and a sustainable workforce in research and innovation. Better engagement with hospitals and medical research institutes in its physical infrastructure may also be beneficial for growth and cross training of staff, and adding new capabilities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 148

Fri, Dec 5, 2025, 05:07 PM Australian Eastern Daylight Time  
[ID: sbm398336db57e6c0ddb4fe3]

Title  
Mr

First Name  
Ralph

Last Name  
Marszalek

Organisation  
The University of Queensland

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills for all NRI workforce:

- **Ethics and epistemology:** In addition to technical expertise, the NRI workforce needs strong skills in ethics and critical data literacy. As more research incorporate large datasets and AI-driven tools, including machine-learning models and LLMs, the workforce must be equipped to recognise and critically engage with the biases, assumptions and limitations embedded in these systems. This capability is essential not only for responsible practice, but for ensuring that research outcomes produced through data-intensive or AI-enabled methods are valid, transparent and worthy of public and scientific trust.
- **Relational capability:** Building trust across diverse research communities; cultural competency, particularly for Indigenous research; navigating competing priorities. Building trusted and authentic relationships across a range of sectors (beyond researchers) will also be critical, e.g. industry (from small, entrepreneurial entities to multinationals with mature R&D roadmaps), government and community sectors.
- **Translation skills:** Explaining technical capabilities to researchers (industry) and research needs to technical specialists; making infrastructure accessible and visible. Ability to translate research or industrial problems into technical programs that can provide solutions.
- **Strategic thinking:** Understanding research landscape and emerging directions; anticipating future needs rather than only serving current demands.
- **Collaborative facilitation:** Enabling others' success; working across institutional and disciplinary boundaries and working more seamlessly across NCRIS projects.
- **Adaptability:** The NRI workforce needs to keep pace with the rapidly changing environment in which they operate and be up-skilling or re-skilling to meet these demands. This adaptability applies to both technical and non-technical skills and includes

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

an ability to move projects through differing research or translational pathways, with requisite specialist skillsets in IP, commercialisation, and market impact

Noting that highly-skilled personnel are a cornerstone of NRI (see Q1) and that their technical abilities are often unique and difficult to replace on a time scale that matches the needs of the community. These foundational skills, however, enable technical expertise to be deployed more effectively in service of the broader organisational research endeavour.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Ultimately, the NRI projects need to be seen as attractive environments in which to begin, develop, and sustain a rewarding career. Specific elements include:

- **Recognition and Respect:** Valuing and communicating the impact that the NRI workforce contributes to research or translational outcomes and global and economic success. Actively supporting and funding activities that allow the NRI workforce to participate in and disseminate information at national and international meetings, workshops, and other fora would enhance this aspect.
- **Career Pathways and Growth:** Creating an environment that provides both the pathways and opportunities for professional development to continually grow meaningful careers within the NRI ecosystem within Australia (and globally). More commonality of workforce frameworks across NRI environments will be crucial to allow cross-disciplinary and cross-sectoral mobility at scale.
- **Cornerstone Technologies that Drive Innovation:** Enhancing the engagement of the NRI workforce with the leading industry capabilities they support, and ensuring the environments in which they operate are aligned to industry standards, would enhance career satisfaction and mobility between sectors.
- **Sustainability:** Ideally, funding and budgets would allow for greater job security of NRI staff (particularly within the cyclically funded NCRIS facilities). However, if this cannot be achieved, then an effort to ensure more timely securing of cyclic funds, and subsequent communication with the workforce, are essential.
- **Future Workforce:** Given the highly specific technical skills required within the NRI workforce, the facilities themselves have an important role in training future generations of skilled research workers for Australia. Consideration should be given to funding the establishment of ECR fellowships, apprenticeships, and internships that occur in partnership with research organisations and tertiary education providers.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 147

Fri, Dec 5, 2025, 04:59 PM Australian Eastern Daylight Time  
[ID: sbm398330b328e6155558489]

Title  
Dr

First Name  
Chris

Last Name  
Hatherly

Organisation  
Academy of the Social Sciences in Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

- Digital literacy and advanced data analytics.
- Ethical governance of human and culturally sensitive data.
- Sound understanding of Indigenous-led data stewardship and cultural competency.
- Collaboration and stakeholder engagement skills.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

The Academy of the Social Sciences in Australia recommends the following high-level approaches:

- Establish clear career pathways and recognition for infrastructure professionals.
- Provide ongoing training and upskilling in emerging technologies.
- Support Indigenous workforce leadership.
- Ensure sustainable funding streams to retain expertise.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 146

Fri, Dec 5, 2025, 04:52 PM Australian Eastern Daylight Time  
[ID: sbm398329e070806c00062d7]

Title  
Dr

First Name  
Jane

Last Name  
Fitzpatrick

Organisation  
Australian National Fabrication Facility Ltd

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Our RI are highly regarded specialists in their fields and many have a wide range of skills and experience that contributes to their effectiveness. The NCRIS program has built an enviable set of experts which provides a critical mass across the NRI sector. This critical mass is crucial to returning the best value from the overall NRI investment. This critical mass of expertise is only possible because of the size and longevity of funding. Funding security leads to a secure workforce which leads to a critical mass of expertise available for the Australian ecosystem.

Here is a list of some skills that are critical to ensure that RI has the broadest applicability.

- High level technical knowledge, including the ability to design and create new processes in conjunction with the user, to achieve their desired outcomes.
- Customer service skills
- Understanding of the different motivations involved for different clients
- Communications skills
- Management skills
- Project management skills
- People and team management skills
- Knowledge of how industry works in their sector
- Regulatory requirements of industry sectors
- Quality management skills
- International standards, validation and testing requirements of relevant industries

Not all of these skills are needed by each RI specialist but across teams a mixture of these skills will provide high level services to the various clients NCRIS serves.

While this mix of talent is crucial to providing a relevant capability, it can come at the expense of deep redundancy in some technical aspects. There is a finite resource available

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

and choices are need as to what kind of talent mix is best suited to particular NRI Providers.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

To retain staff and attract new capabilities to the current NRI workforce, it is important to ensure that roles are engaging, flexible and rewarding. Providing employees with a sense of security is also critical; while five-year contracts are not unreasonable—especially considering that industry often offers permanent contracts yet can still terminate employment with only four weeks’ notice—longer-term opportunities can help build confidence in job stability.

This critical mass of expertise currently available across the NRI system is only possible because of the size and longevity of funding. Funding security leads to a secure workforce which leads to a critical mass of expertise available for the Australian ecosystem.

When new expertise is required, establishing long-term projects can serve as an effective means of attracting talented professionals. Additionally, offering career progression (including recognition of increasing technical expertise, promotion and rewards) within their own institutions further motivates staff and fosters a sense of belonging and achievement. Addressing the differences between the various employers of NRI staff could also bring about a greater level of perceived fairness and value. The differences between the employment practices of CSIRO and our universities can vary significantly when hiring people who are technically excellent but not academics. Some policy settings that work towards equity and transparency for this group of workers would be welcome.

One method to increase the awareness of this group and to highlight the actions that can be taken to address various inequities is the Technicians Commitment, developed in the UK. Having an Australian version of this would serve to elevate the standing of and build the NRI workforce.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 143

Fri, Dec 5, 2025, 03:35 PM Australian Eastern Daylight Time  
[ID: sbm3982e3666a50d97ac5c10]

Title  
A/Prof

First Name  
James

Last Name  
Riches

Organisation  
Queensland University of Technology

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

NRI staff will typically be providing training and support in their area of expertise to researchers from across the country. These users will often have differing backgrounds and levels of understanding and competence, so strong skills in training and communication are essential. The staff that take up positions in NRI do not always possess these skills, as they often come from research, rather than teaching, backgrounds. Providing these skills to new and developing staff is essential for ensuring the maximum return on investments in research infrastructure. Communicating with the range of stakeholders that may access the NRI (e.g. university, industry and government users) effectively and clearly is also vital in ensuring that the best outcomes are achieved and that each users' problems are solved. These soft skills are equally as important as the highly specialised skills in the NRI techniques.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

In order to attract and retain staff in the NRI workforce, job security and a viable career pathway needs to be offered. In the past, the latter was unavailable, as staff were either employed on a technical/professional pathway, without opportunity for promotion, or they were employed as academics, but were judged against KPIs that did not recognise the additional requirements (e.g. user training, instrument maintenance, etc) that they had, compared to traditional academics.

In recent years, some universities (e.g. University of Melbourne, QUT, ANU, UQ) have developed hybrid models that recognise the roles and responsibilities of NRI staff, and which provide the opportunity for career advancement. The problem of career pathways for core facility staff is also recognised internationally, and groups such as Global Bioimaging are working to provide recommendations in this area. The models that are

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

increasingly offered in Australia are seen very positively, and these make positions advertised in Australia very attractive to qualified applicants. I believe that the existing efforts should be supported, and other institutions should be encouraged to adopt similar models for their staff.

Another problem that is present is the lack of funding for staff positions. It is typically much easier to fund advanced research infrastructure than to fund an expert staff member to run this infrastructure, but one without the other is useless. NCRIS funding positions for expert staff members was an excellent and novel initiative and this support needs to be maintained, lest the investments in the RI be wasted, when positions are no longer able to be maintained.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 142

Fri, Dec 5, 2025, 02:50 PM Australian Eastern Daylight Time  
[ID: sbm3981f31cd0e67e95889dc]

Title  
Dr

First Name  
Alexander

Last Name  
Cooke

Organisation  
Astronomy Australia Ltd

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Australia's RI workforce are highly regarded specialists in their fields, and many have a wide range of skills and considerable experience that contributes to their effectiveness. The NCRIS program has built an enviable set of experts which provides a critical mass across the NRI sector. This critical mass is crucial to returning the best value from the overall NRI investment. This critical mass of expertise is only possible because of the size and longevity of funding. Funding security leads to a secure workforce which leads to a critical mass of expertise available for the Australian ecosystem.

Here is a list of some skills that are critical to ensure that RI has the broadest applicability.

- High level technical knowledge
- Customer service skills
- Understanding of the different motivations involved for different clients
- Communications skills
- Management skills
- Project management skills
- People and team management skills
- Knowledge of how industry works in their sector

- Regulatory requirements of industry sectors
- Quality management skills
- International standards, validation and testing requirements of relevant industries

Not all of these skills are needed by each RI specialist but across teams a mixture of these skills will provide high level services to the various clients NCRIS serves.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Providing highly skilled and sought after NRI employees with a sense of security is critical. Five-year contracts are not unreasonable—especially considering that industry often offers permanent contracts yet can still terminate employment with only four weeks’ notice. Longer-term opportunities can help build confidence in job stability, and mitigate against the higher salaries offered in industry.

NCRIS capabilities have built a critical mass of expertise across funded projects - capability that is currently only available because of the size and longevity of funding that is not limited to supporting specific projects and subject to competitive granting cycles. Funding security leads to a secure workforce which leads to a critical mass of expertise available for the Australian ecosystem. This also means that the critical mass can build on previous experience with similar projects rather than risking re-inventing the wheel or losing time while new capability becomes familiar with activities that are bespoke and deploying cutting edge approaches.

In the case of astronomy, retention of software engineers is critically important and challenging. This capability is used to develop critical components of astronomy infrastructure, which is then valued as in-kind by international astronomy facilities. Skilled software engineers can command very high salaries in the private sector. NRI providers can compete with this by supporting flexible working and considering work-life balance issues and long-term job certainty.

The MAVIS project, supported by AAL, is underpinned by expertise in adaptive optics, detector electronics and integral field unit spectrography that has been in place since at least 2020. Australia’s leadership on this project is dependent on this expertise remaining in place until 2031. The development of the MAVIS instrument in Australia delivers spillovers to expertise on other projects in Australia but is also used as a contribution to buy observing time on overseas optical telescope facilities. Should this capability leave, it would present a critical risk to the delivery of the project.

Some astronomy infrastructure is hosted in remote locations, operated by limited staff with decades-long expertise in managing the facilities. In some cases, losing one staff member would lead to the shut-down of a facility and having negative spillovers on the remote community where the facility is based. In the case of the AAT, should key staff not be retained due to employment uncertainty, it would be impossible to replace them, which would lead to significant impacts both for the facility but the surrounding community.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

It is also important to emphasise that many staff participate in NRI projects due to the awe and inspiration that comes from participation in global-scale and cutting edge science infrastructure projects - participating in projects that will help us understand the origins of the universe and where we have come from. Certainly in the case of astronomy, numerous staff work on large infrastructure projects because of this, and choose to do so instead of earning significantly larger salaries to work with organisations based in the same location.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 141

Fri, Dec 5, 2025, 02:48 PM Australian Eastern Daylight Time  
[ID: sbm3982b8b8a3e68b43e908b]

Title  
Ms

First Name  
Molly

Last Name  
Ireland

Organisation  
CSIRO

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The Choose Europe Strategy ([https://commission.europa.eu/topics/research-and-innovation/choose-europe\\_en](https://commission.europa.eu/topics/research-and-innovation/choose-europe_en)), Workforce Focus 2025 includes a range of priorities that are designed to make Europe a magnet for top researchers and innovators. Noting Australia's NRI workforce faces similar challenges, the following critical skills could be considered:

- Collaboration and teamwork: The ability to work across disciplines, institutions and borders
- Communication and Knowledge sharing: Communication of complex ideas to policymakers, industry and the public, essential for translating research into economic impact.
- Adaptability and lifelong learning: Flexibility to pivot as technologies and priorities evolve.
- Cultural Awareness & Inclusivity: Skills to thrive in diverse, multicultural teams. Important for attracting and retaining global talent, as highlighted in the EU strategy.
- Ethics & Integrity: Commitment to responsible research practices, data stewardship, and transparency.

Further to this, consideration could be given to ensuring that NRI staff are supported to get appropriately vetted/cleared to work on more secure and protected matters. A security cleared workforce will underpin the operation of the critical research infrastructure required for Australia's sovereign and strategic capability.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Drawing from the same Choose Europe Strategy, the following capabilities could be prioritised:

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- **Career Security & Recognition:** Provide long-term contracts and clear career pathways. Recognise contributions beyond technical expertise (e.g., leadership, mentoring, outreach).
- **Continuous Skills Development:** Invest in training for emerging areas: AI, quantum, data science, sustainability. Encourage lifelong learning through micro-credentials and flexible programs.
- **Global Collaboration & Mobility:** Facilitate international exchanges and joint projects. Position NRI staff within global networks to keep skills current and attractive.
- **Inclusive & Supportive Work Culture:** Strengthen diversity, equity, and inclusion policies. Provide family-friendly policies, flexible work arrangements, and wellbeing programs.
- **Innovation & Entrepreneurship Pathways:** Encourage staff to translate research into industry applications. Support spin-offs, startups, and partnerships with industry to broaden skill sets.
- **Strategic Capability Building:** Identify gaps (e.g., advanced computing, climate modelling, biotech) and proactively train or recruit in those areas. Use workforce planning to align capabilities with national priorities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 140

Fri, Dec 5, 2025, 02:47 PM Australian Eastern Daylight Time  
[ID: sbm3982b803db50713b345cc]

Title  
A/Prof

First Name  
Heath

Last Name  
Pardoe

Organisation  
Florey Institute of Neuroscience and Mental Health

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

(1) Communication.

Ability to clearly and effectively communicate technical developments through publications, software, documentation, workshops, and lectures. This also includes providing concise and appropriate communication to stakeholders.

(2) Adaptability.

Capacity to evolve in response to emerging technologies and changing user needs.

(3) Collaboration.

Strong collaborative skills to operate effectively at the interface between human research infrastructure and traditional academic roles.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Staff retention and addition of new capabilities can be somewhat orthogonal goals. The funding model underpinning our NRI workforce often constrains both. Most of our NRI workforce is supported by short term, project linked and co-funded approaches. This limits long-term security and weakens our ability to plan for future capability requirements.

Retention would be supported by:

(1) Well defined career progression pathways for research infrastructure specialists that acknowledge and accommodate for the difference between these roles and traditional academic promotion pathways.

(2) Meaningful support for professional development. I believe this should be a core requirement for the NRI workforce.

Building new capabilities requires:

(1) Targeted recruitment to fill capability gaps that cannot be met internally. eg. AI/ML, software engineering

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- (2) National-scale capability uplift, including cross-facility training, secondments, embedding in domain-specific areas to broaden expertise of existing staff, reduce key-person dependencies and develop national networks.
- (3) Flexible funding to allow for rapid response to emerging technologies or changes in national priorities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 139

Fri, Dec 5, 2025, 01:26 PM Australian Eastern Daylight Time  
[ID: sbm39822b4e18e6e5d4282a4]

Title  
Dr

First Name  
Miranda

Last Name  
Smith

Organisation  
The Peter Doherty Institute for Infection and Immunity

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce would benefit from expertise in both research and industry, and the ability to move between the two sectors. This includes specific training to understand the regulatory, quality assurance and commercial imperatives of industry. These skills could be offered, for example, as microcredentials for PhD and Masters students to broaden their employment options and/or through the development of placement/internship programs.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

As noted in our submission to the draft National Health and Medical Research Strategy ([https://www.doherty.edu.au/uploads/content\\_doc/Doherty-NHMRS-Submission-FINAL-8Oct2025.pdf](https://www.doherty.edu.au/uploads/content_doc/Doherty-NHMRS-Submission-FINAL-8Oct2025.pdf)), the Doherty Institute supports the development of an Australian Health and Medical Research Workforce Plan which includes recognition of non-research staff and supported pathways for diverse careers. In this context, a strategic and coordinated approach to staff development should be pursued across NRI facilities to enable both specialised and more general skills to be acquired, and for ongoing assessment of skill requirements within a setting that provides good job security and career development opportunities for these critical staff. The University of Melbourne's Academic Specialist job classification category offers a useful model for how these roles can be operationalised, providing recognition of academic qualifications and flexibility to adapt to specific role requirements in the context of a broader system for professional development.

2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation  
Issues Paper Consultation Survey  
Department of Education

# 138

Fri, Dec 5, 2025, 01:10 PM Australian Eastern Daylight Time  
[ID: sbm39825e8f3950d1094bd31]

Title  
Prof

First Name  
Pieter

Last Name  
Eichhorn

Organisation  
Curtin University

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Curtin University considers a strong foundational skill set essential for the National Research Infrastructure (NRI) workforce, regardless of technical background. The success of NCRIS-funded initiatives, such as the Murchison Widefield Array (MWA) over the past 15 years, demonstrates the importance of combining highly specialised subject matter experts with a broader workforce possessing strong cross-cutting capabilities. At MWA, specialist astronomers and engineers have been effectively supported by project officers and managers with strengths in communication, project and financial management, operations, health and safety, and risk management. This integrated workforce model has been critical to sustaining high-quality operations and delivering national research impact. Looking forward, the NRI workforce must also encompass adjacent skills that are becoming increasingly important across all domains. Expertise in database and systems administration, ICT security management, and the stewardship of complex digital platforms is now essential to maintain the integrity, reliability and security of shared infrastructure, particularly in data-intensive environments similar to those that underpin the MWA and other national facilities.

More broadly, critical skills for the NRI workforce include the ability to communicate complex ideas clearly, collaborate across disciplines, and engage effectively with diverse internal and external stakeholders. Strong problem-solving, critical thinking and adaptability are essential as research and innovation needs evolve, including the adoption of AI, advanced analytics and new data governance requirements. Project management capability is vital to ensure infrastructure projects are delivered on time, on budget and aligned with strategic priorities. Ethical awareness, integrity, and cultural competence, including the ability to engage respectfully with Indigenous knowledge and perspectives, are fundamental to responsible research practice.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Curtin University supports approaches that put workforce stability and capability at the centre of National Research Infrastructure (NRI) planning. Retaining and developing existing staff typically delivers greater impact than dispersing scarce funds across new roles.

NRI facilities rely on skilled personnel who combine technical expertise with operational, safety, financial and project management capabilities. As infrastructure ages, however, growing maintenance demands and obsolete components absorb staff time, crowding out upskilling and collaboration. Prioritising funding for timely upgrades and best practice maintenance would relieve this burden, protect productivity and strengthen the economic and research returns from NRI investments.

The timing of the NCRIS budget cycle adds another challenge for staff retentions. Late budget decisions and contract renewals prevent organisations from offering job security, driving experienced staff to leave and forcing overly conservative budgeting. This erodes efficiency and shifts effort from strategic planning to short term survival.

These pressures create systemic risks:

- Loss of critical talent High-performing staff who are difficult to replace and whose loss impacts on significant research projects may leave due to limited advancement opportunities.
- Inequity Staff doing equivalent work to academic peers are not provided equal recognition or support.
- Operational Misalignment: Inconsistencies in role classification lead to confusion, inefficiencies, and disputes.
- Innovation Bottlenecks: Technically specialised staff are critical to research innovation but lack formal mechanisms to lead or advance projects.

Potential actions to address this:

Develop a Consistent Role Classification Framework

- There is a growing need to recognize roles that support research but do not fit traditional academic classifications. These include technical specialists, research infrastructure staff, and industry-engaged academics.
- Current classification systems are inconsistent, leading to confusion and limited career progression for staff in these roles

Create Structured Career Pathways

- Design and implement career progression frameworks for technical and research specialist roles, allowing advancement without requiring job reclassification or major changes in duties.
- Include promotion criteria that recognize technical innovation, research support, and scholarly outputs beyond traditional publications

Alignment of Performance Expectations and Evaluation

- Academic staff focused on industry and commercialisation should have recognized pathways for advancement, recognising that outputs differ from traditional research metrics. This requires upskilling line managers and increasing awareness of these pathways
- Develop tailored performance frameworks for specialist roles, focusing on their contributions (e.g., technical leadership, research infrastructure, industry engagement).
- Ensure these frameworks are distinct from traditional academic or professional staff evaluations and provide training for line managers on their application.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**Expand and Formalize Industry Practice Engagement Roles**

- Broaden the scope of Industry Practice Engagement positions to allow appointments at all academic levels.
- Define performance expectations and promotion pathways for these roles, especially for appointments below the most senior academic levels.
- Promote awareness of these pathways among staff and managers to encourage uptake.

**Mitigate Strategic Risks**

- Prioritize these changes to address risks such as talent loss, inequity, operational misalignment, and innovation bottlenecks.
- Monitor and report on the impact of new frameworks on staff retention, research outcomes, and organizational efficiency.
- Engage staff in consultation processes to ensure frameworks meet real needs and gain broad support.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 136

Fri, Dec 5, 2025, 12:20 PM Australian Eastern Daylight Time  
[ID: sbm398231003850a8f169472]

Title  
Mr

First Name  
Andrew

Last Name  
Gilbert

Organisation  
Bioplatforms Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

ACRI performed a survey of the Australian research infrastructure workforce in 2022/23, the results of which noted the following non-technical skills.

- A deep understanding of the value and consequence of Indigenous Knowledge Systems.
- Program and project Management.
- Governance, Strategy and Planning.
- Finance and Management Accounting.
- Effective and Efficient Operations.
- Communication, Engagement and Customer Service.
- Quality Control and Assurance.
- Marketing and Business Development

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

1. Providing secure employment through stable funding of salaries.
2. Equivalence in respect and opportunity of RI (typically Professional stream) to Academic staff within institutions. The cultural changes at the institutional-level as demonstrated internationally via initiatives such as the UK Technicians Commitment would be an enhancement to the current state. Implementation of a similar construct as a responsibility on recipients of NRI resources could be appropriate.
3. Professional development, career opportunities and leadership growth would provide workforce with an intangible sense of current value. NRI also provides a strategic workforce that has permeated Australia's innovation system and personal growth through workforce involvement that will bring individual and system value beyond direct involvement in NRI delivery.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

4. Support opportunity for staff to pursue or lead research interests alongside their service-provider responsibilities. Enabling NRI staff to also undergo relevant research endeavours fosters a sense of ownership, achievement and professional fulfilment, which can strengthen retention. At the same time, the outcomes of research activities introduce new methods, skills and ideas back into the NRI, expanding its capabilities and keeping the workforce innovative, motivated and deeply engaged.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 135

Fri, Dec 5, 2025, 12:10 PM Australian Eastern Daylight Time  
[ID: sbm398228310d80ed703cc9b]

Title  
Dr

First Name  
Andre

Last Name  
Zerger

Organisation  
Atlas of Living Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Using the Atlas of Living Australia Strategy 2025-2030 as a driver for this response, beyond technical expertise, the NRI workforce must possess strong collaborative, interpersonal and user engagement capabilities. This includes the ability to build and maintain partnerships across government, industry, Indigenous communities, NGOs, and international networks. Effective communication is essential for engaging diverse stakeholders, delivering training, and simplifying complex biodiversity concepts for varied audiences. Cultural competence is also critical, particularly in applying CARE principles and respecting Indigenous Cultural and Intellectual Property rights when working with Indigenous partners. These skills ensure inclusivity and ethical engagement in all aspects of biodiversity data management. A strong focus on problem-solving, user engagement, governance, and environmental sustainability underpins the future NRI workforce's ability to navigate challenges like cybersecurity risks and environmental impacts of operations.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Staff retention is fundamentally about positioning the NRI system as an employer of choice, and key to this is to better understand the motivators and drivers of our current workforce, for example around their ability to innovate, opportunities for staff mobility, autonomy, career progression, continuity of employment and access to enhanced learning and development opportunities. A starting point should be to poll our existing workforce to understand these drivers, before designing interventions and responses.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 134

Fri, Dec 5, 2025, 11:56 AM Australian Eastern Daylight Time  
[ID: sbm396f5493c5167e1dc815f]

Title  
Dr

First Name  
Liisa

Last Name  
Hirvonen

Organisation  
The University of Western Australia

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Facility management, teaching & training skills.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Clear career pathways with opportunities for promotion. We have lost both highly skilled senior staff, and early career technical staff, who were happy with their jobs but saw no opportunities for promotion or career development.

More job security. Contracts for 1-2 years mainly attract people who see the opportunity as a stop-gap while looking for a more permanent job. Especially when combined with limited career development opportunities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 133

Fri, Dec 5, 2025, 11:33 AM Australian Eastern Daylight Time  
[ID: sbm398206314de66e6752381]

Title  
Prof

First Name  
Jacek

Last Name  
Jasieniak

Organisation  
Monash University

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Given the rapidly evolving research landscape, the NRI workforce encompasses a wide range of roles, from technical and operational specialists to engagement, strategy, and management professionals. This broad scope requires individuals to possess a significant and diverse skill set to be successful. However, in an operationally constrained environment, it is not realistic to expect a relatively small and resource-limited workforce to hold deep expertise across all of these areas. As such, a balance of broad capability, targeted training, and strategic role specialisation is essential to ensure the workforce can effectively deliver and sustain national research infrastructure.

Beyond technical expertise, the NRI workforce requires a broad suite of professional, operational, and interpersonal skills to effectively deliver, manage, and translate national research infrastructure for maximum impact. These include:

**Business and operational management:** Staff must demonstrate strong business acumen and operational capability, including project management, strategic planning, capital project delivery, procurement, and financial management. Skills in budgeting, forecasting, cost-recovery, and business case development are essential to ensure sustainable operations within open-access research environments.

**Quality, ethics and governance:** Capability in quality assurance (e.g. NATA, ISO) and adherence to ethical standards (e.g. human and animal ethics, data privacy, research integrity, authorship, and acknowledgment) is critical. These underpin the trustworthiness and global competitiveness of Australian research infrastructure.

**Data and digital literacy:** As AI, automation, and advanced analytics become integral to research infrastructure, all staff (regardless of role) should demonstrate baseline data

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

literacy. Increasingly, advanced data processing and analysis from research equipment occur in cloud-based environments. To keep pace, NRI professionals must be proficient in emerging AI and data tools, enabling them to deliver real-time insights, streamline workflows, and support cutting-edge research. Strengthening these capabilities will allow staff to focus on higher-value, creative work such as developing new techniques, refining methodologies, and driving research innovation.

**Communication and relationship management:** Strong communication and client engagement skills are vital for translating research outcomes, building partnerships, and ensuring effective service delivery. Staff should be able to mentor peers, manage client expectations, and maintain active engagement with users, industry, and government partners.

**Interdisciplinary collaboration:** The workforce must be adept at collaborating across disciplines and sectors, bridging the gap between researchers, industry clients, and technical experts. This includes the ability to translate complex technical outputs into business, policy, or societal impact.

**Marketing and business development:** Skills in business development and stakeholder engagement enable the workforce to identify opportunities and align services with national priorities and organisational strategies.

**Adaptability and continuous learning:** Given the rapid evolution of technologies, such as quantum and AI, the NRI workforce must foster a culture of adaptability, innovation, and continuous professional development to maintain relevance and leadership in emerging fields.

In health and the life sciences, international competency frameworks such as those developed by EMBL have been developed for a range of career profiles and career stages. They highlight a common set of transferable competencies that are foundational for all NRI roles irrespectively of disciplines and sectors. See: <https://competency.ebi.ac.uk/>. EMBL Australia is working closely with EMBL and other international partners on adopting those competencies and contextualising them to the Australian NRI ecosystem to benefit the current and future Australian NRI workforce. An example is the 'AusRISE' proposal submitted to the 2025 NCRIS Round 2, in which EMBL Australia proposed the collaborative development and delivery of Australia's first RI fellowship and training program.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

A sustainable and capable NRI workforce requires a holistic, nationally coordinated approach that combines long-term investment, clear career pathways, professional development, and cross-sector collaboration. Recommendations include:

**Establish a national framework and coordinating body:** Australia should develop a unified national approach to workforce development through a dedicated national organisation, supported by government, industry, and institutions. This body would:

- Coordinate national training and leadership programs, including Fellowships and exchange initiatives.
- Serve as a hub for workforce data, analytics, and forecasting to identify emerging skill gaps.
- Facilitate national mobility and secondment programs across NRI facilities, universities, and industry.

-Promote consistent, competitive salary benchmarking across the sector.

Create a national workforce classification and career pathway framework: There is a need for a national RI workforce classification framework that establishes consistent career progression, recognition, and promotion structures across institutions. Employment structures must recognise the specialised technical and operational contributions of NRI staff, ensuring that roles beyond traditional academic tracks are valued and supported. The UK's Institute for Technical Skills and Strategy is considered global best practice in this space.

Strengthen workforce mobility and collaboration: Mobility programs are vital to skill development and national cohesion. Structured exchange and secondment programs between NCRIS facilities, universities, and industry partners (both nationally and internationally) would:

- Enable staff to gain experience in emerging technologies;
- Build cross-sector understanding; and
- Support translation and commercialisation outcomes.

Establish a Fellowship Scheme: This presents a significant opportunity to enhance skills, improve career mobility, and address workforce retention challenges within the research infrastructure sector. The scheme should cater to both early- and mid-career staff, offering placements across a range of research infrastructure roles, disciplines, sectors, and organisations to foster transferable and translational skills. To ensure its success, the scheme must be strategically designed, well-funded, and responsive to the evolving needs of both staff and research institutions:

- Skills development: Provide staff with opportunities to gain expertise in cutting-edge technologies and cultivate transferable skills, such as data analysis, service provision, user engagement, industry collaboration, partnership building, and communication.
- Mentoring and training: Programs should include formal professional development, mentoring, and access to leadership training.
- International & national collaboration: Facilitate exchange programs, such as cross-institutional placements or secondments, that foster collaboration between Australian and international research infrastructure facilities, broadening the scope for knowledge sharing and innovation. There are many facilities that already do this, such as NIF.
- Recognition and visibility: Fellowships should elevate the profile of recipients, with clear communication of their contributions to research impact.

A national program, such as outlined in the 'AusRISE' proposal by EMBL Australia, would support structured, flexible and inclusive professional development. Such a program would foster a highly specialised, globally connected and innovative NRI workforce.

Ensure long-term funding stability: Predictable, multi-year funding is essential to workforce continuity. Short-term funding cycles undermine retention and limit the ability to build expertise. Sustained investment in professional development, leadership, and workforce planning will ensure the NRI system remains globally competitive and adaptive to future challenges.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 130

Fri, Dec 5, 2025, 10:36 AM Australian Eastern Daylight Time  
[ID: sbm3981d2234f802b17f92f4]

Title  
Ms

First Name  
Jacinta

Last Name  
White

Organisation  
CSIRO

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

(1) software skills to mine existing and emerging datasets (2) A subset population with expansive project knowledge

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Traineeships, career flexibility, certainty of funding (!), this is a big issue now - being able to keep trained staff

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 128

Fri, Dec 5, 2025, 09:39 AM Australian Eastern Daylight Time  
[ID: sbm39819d7979e62fb03bec2]

Title  
Ms

First Name  
Louise

Last Name  
Soroka

Organisation  
Geoscience Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

- \* Cultural competency (First Nations, disability, etc)
- \* Communication skills - the ability to engage with all Australians no matter which stakeholder group they fall into
- \* Mentoring and coaching skills to ensure early careerists are supported
- \* Literacy in handling, manipulating and delivering 'big data' and data custodianship - to enable NRI data assets to be accessible for multiple uses, now and into the future, rather than 'single-use.
- \* Emphasize "impact awareness and user-centred thinking" as a core skill.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

- \* Mobility across NRI capabilities and facilities this will increase interdisciplinary projects, cross facility cooperation and realisation of broader impact across the economy, society and the environment. This could look like secondments across government, industry and academia, imbedded researchers in government and industry.
- \* Value and reward excellence in data custodianship and data accessibility and delivery. These roles often enable and maximise benefits from NRI, including across disciplines or facilities, yet traditionally have not always been well recognised or seen as career paths. Note that this point aligns with several suggestions received in the 'New Research Infrastructure' topic that emphasise the need to better curate 'collections' of various types (both physical collections and data collections).

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

\* While it is difficult to compete with private sector pay packages for innovation, it may be useful to provide career advancement with the concrete financial benefits within the existing APS salary structure.

\* Demonstrating tangible outputs and real world impact to staff, linking their work to national priorities to build pride and long-term commitment.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 127**

Thu, Dec 4, 2025, 07:25 PM Australian Eastern Daylight Time  
[ID: sbm397e8fc6db814b4e540f9]

Title  
Prof

First Name  
Ricardo

Last Name  
Ruiz Baier

Organisation  
MoCaO (Mathematics of Computation and Optimisation)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Availability, efficiency.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Decent salaries, job security.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 125

Thu, Dec 4, 2025, 04:30 PM Australian Eastern Daylight Time  
[ID: sbm397def758f81209358393]

Title  
Dr

First Name  
Felicity

Last Name  
Flack

Organisation  
Population Health Research Network

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

While technical expertise is the defining feature of the NRI workforce, success also depends on a set of cross-cutting skills that enable collaboration and adaptability in a complex research environment. These include strong communication skills to convey complex ideas to diverse audiences, collaboration and teamwork across disciplines and sectors, project and program management capabilities, digital literacy and data stewardship (including FAIR principles and cybersecurity awareness), adaptability and commitment to continuous learning, leadership and strategic thinking, and stakeholder engagement and negotiation skills. These capabilities are not unique to NRI but are critical enablers that ensure technical expertise can be applied effectively to deliver national research priorities.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention and capability building in the NRI workforce are not unique challenges, but they are critical for continuity and growth. The best approach combines stability, engagement, and development opportunities. Key strategies include:

- Competitive remuneration and benefits to attract and retain talent.
- Reasonable contract lengths (3-5 years) and adequate notice of funding changes (at least six months) to provide security and allow planning.
- Retention incentives when funding is ending to maintain capability through project completion.
- Interesting and meaningful work that aligns with national research priorities and offers intellectual challenge.
- Professional development opportunities, including training, mentoring, and exposure to emerging technologies.
- Flexible work arrangements to support work-life balance.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Clear pathways for career progression within and beyond NRI roles. Importantly, retention should not always be the sole goal. Success can also mean providing a fulfilling experience and skill development that enables staff to transition to other opportunities, strengthening the broader research ecosystem.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 124

Thu, Dec 4, 2025, 04:29 PM Australian Eastern Daylight Time  
[ID: sbm397def151f95da3caaf8d]

Title  
Ms

First Name  
Annette

Last Name  
Wittmann

Organisation  
EMBL Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Australia's NRI workforce plays a vital role in enabling the research system to function effectively. These staff provide specialist knowledge, operational capability and user support that directly underpin national research productivity.

In health and the life sciences, international competency frameworks such as those developed by EMBL have been developed for a range of career profiles and career stages. They highlight a common set of transferable competencies that are foundational for all NRI roles irrespectively of disciplines and sectors. See: <https://competency.ebi.ac.uk/>

Ensuring alignment with such internationally recognised frameworks is crucial for Australia: it enables Australian NRI to be interoperable with global research infrastructure systems, and for NRI staff to collaborate effectively with international partners, contributing to shared data, technical and operational standards.

EMBL Australia is working closely with EMBL and other international partners on adopting those competencies and contextualising them to the Australian NRI ecosystem to benefit the current and future Australian NRI workforce. An example is the 'AusRISE' proposal submitted to the 2025 NCRIS Round 2, in which EMBL Australia proposed the collaborative development and delivery of Australia's first RI fellowship and training program. This initiative responds directly to the national need for consistent, standards-based training and capability uplift across the NRI landscape. The below outlines some of the NRI workforce skills that we deem as critical:

User engagement and service delivery:

All NRI personnel need strong capabilities in understanding user needs, delivering high-quality services, and supporting researchers efficiently. This includes competencies in

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

method/service optimisation, quality management and effective researcher interaction. These skills ensure Australian facilities remain both accessible and impactful, and embedding these skills supports NRIs in meeting growing expectations for responsive, industry-aligned and researcher-focused service provision.

**Collaboration, communication and partnership building:**

The ability to collaborate across institutions, disciplines, industry and international partners is consistently highlighted. Strong interpersonal and communication skills foster research-industry collaboration, improve workforce participation and support inclusive research environments. Furthermore, international collaboration skills are increasingly essential as Australian NRIs operate within global research and data ecosystems.

**Digital literacy and data stewardship:**

With national research increasingly data-intensive, data stewardship is critical and includes universal competencies including FAIR data principles, metadata, digital tool usage, data governance, and responsible data handling. These skills are essential to developing Australia's digital research capabilities and supporting translation, and they align strongly with national priorities around digital transformation, AI readiness, and open data.

**Problem solving, innovation and adaptability:**

Competencies in troubleshooting, method development and continuous improvement are important for NRI staff who operate in rapidly evolving technological environments and support Australia's need for a highly skilled, future-ready workforce. Innovation capability is central to ensuring the NRI workforce can adopt and develop emerging technologies alongside industry and international partners.

**Understanding of RI operations, ethics and research culture:**

For RI management and leadership fundamental competencies in governance, risk management, integrity, and operational awareness are key. Familiarity with these areas enhances workplace safety, ensures high-quality research environments, and supports long-term capability building. Embedding responsible research practices also strengthens Australia's global competitiveness and reputation in research integrity.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Australia's future research competitiveness will depend on an NRI workforce that is globally connected, digitally skilled, and supported by clear, internationally aligned career structures. Retaining and strengthening Australia's NRI workforce requires a coordinated, long-term approach that addresses persistent sector challenges such as recognition, career development, job security, and workplace culture.

At the same time it is critical to build the new skills needed for a data-rich and globally interconnected research environment. This includes ensuring that Australia remains connected to leading international research infrastructures, which play a critical role in capability uplift and global interoperability. International talent attraction, staff mobility and long-term investment into global partnerships must be prioritised.

EMBL Australia, through its integration with EMBL's global expertise, is well positioned to help deliver this capability uplift:

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Establish clear, nationally recognised career pathways based on agreed competency frameworks (nationally and internationally informed)

Mapping existing NRI roles to agreed frameworks creates transparency, mobility and recognition:

Competency-based job descriptions, performance reviews and progression pathways help address long-standing issues of unclear career structures, limited recognition and poor retention. They also support the targeted recruitment of specialist staff into Australian research institutions.

Develop a competency-aligned fellowship and training program:

A national program—such as outlined in the ‘AusRISE’ proposal by EMBL Australia, would support structured, flexible and inclusive professional development. Such a program would foster a highly specialised, globally connected and innovative NRI workforce.

Support staff mobility across institutions, sectors and countries:

The Roadmap consultation emphasises staff mobility as essential for knowledge exchange, capability uplift and retention. Shared competency frameworks provide a foundation that enable mobility between Australian institutions, industry placements, and international exchanges (e.g., via EMBL) to strengthen technical skills, leadership capability and translation pathways.

An ecosystem approach to retention:

Encouraging cross-institutional and international communities of practice and incorporating train-the-trainer models ensures that knowledge is shared across the NRI ecosystem, helping to mitigate duplication and fragmentation. Shared competency frameworks provide a common language that allow these communities to grow and scale their training program, in collaboration with academic, industry, and international partners.

Invest sustainably in long-term workforce programs:

Short-term funding undermines workforce security and does not encourage the creation of safe, inclusive and innovative workplaces. Any structured workforce development program must be backed by long-term funding to ensure the investments translate into a measurable capability uplift and impact.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 122

Thu, Dec 4, 2025, 03:02 PM Australian Eastern Daylight Time  
[ID: sbm396e4ae605224424c4aef]

Title  
Prof

First Name  
Janet

Last Name  
McCalman

Organisation  
University of Melbourne

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

A strong humanities training is foundational. The technical expertise is more easily acquired or recruited.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

The critical problem is legacy funding to keep projects alive and open to use once the initial funding is exhausted. Otherwise projects disappear as their IT architecture becomes outdated and there is no maintenance. Continuity of funding for maintenance is critical, and from that flows the enduring utility of the infrastructure itself, plus job security for the specialists needed to sustain it. Too many expensive projects die or become irrelevant when the funding dies out. We need legacy funding if these investments are not to be wasted. And we need to care for our workforce so that skills and project/technical memory don't disappear. A continuing, secure technical workforce that could move between projects is far more sustainable than the current 'gig' economy, reinventing the wheel with each new short-term job.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 119**

Thu, Dec 4, 2025, 01:46 PM Australian Eastern Daylight Time  
[ID: sbm397d59dbba99256c42aab]

Title  
Prof

First Name  
Clare

Last Name  
Murphy

Organisation  
University of Wollongong

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Approachable and transparent

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Decent working environment training and salary

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 117

Thu, Dec 4, 2025, 11:43 AM Australian Eastern Daylight Time  
[ID: sbm397ce8df6e998dff2a643]

Title  
Dr

First Name  
Tara

Last Name  
Martin

Organisation  
Tasmanian Department of State Growth

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

It is important to recognise that maintenance is a vital component of NRI, and adequate resourcing of technicians is essential to ensure the robustness of the infrastructure.

Data and digital skills will increasingly crosscut all NRI disciplines.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Visibility of viable career progression is a facilitator of staff retention, as is adding new capabilities. Often staff in RI feel that they are “pigeonholed” in their expertise, with no visible career progression. Providing a balance and variety of roles from junior to senior will support entry-level positions, demonstrate potential career paths and foster senior researchers and leaders.

Flexibility in the workplace should be balanced with reliability in employment and income. Having the capacity to move the workforce around to learn new skills and ways of working will only work if employment is secure. It will remain important to provide training and support for workers to continue to augment their skill set and remain up to date with relevant research and findings in their field.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 116

Thu, Dec 4, 2025, 11:25 AM Australian Eastern Daylight Time  
[ID: sbm397cd8bed8953348ddf10]

Title  
Dr

First Name  
Michelle

Last Name  
Heupel

Organisation  
Integrated Marine Observing System

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Australia's NRI workforce includes a wide range of technical expertise which will be required into the future. This ranges from specialist laboratory and instrument operators to data systems and design specialists. These people are often the intersection point of research and industry within NRI. As such they need a range of skills to inspire confidence with end-users and the community, serve as ambassadors for NRI, and ensure delivery of critical services. These roles require a range of skill sets such as:

- Project management
- Capacity to interface with researchers and industry users
- Personnel/team management and leadership
- Financially responsible operating practices
- Quality control/quality assurance based approaches
- Knowledge and application of standards and regulatory requirements.

Increased support for enabling these skillsets would both enhance the NRI workforce, but also promote upskilling to help create and sustain career plans and trajectory.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

There are a range of things that can be done to help attract staff to NRI. Job security and stability are key among the needs for technical staff. Many are employed on short- or fixed-term contracts with little security. Those employed in universities are typically employed in professional schemes and as such have little opportunity for promotion or career advancement aside from reclassification of their position. This situation does not foster a sense that NRI technical staff are valued members of our community, that their jobs are important to NRI, or that this is an attractive or viable career path. Based on

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

these factors it is unsurprising that offers from industry are highly appealing to technical staff in NRI, or that recruiting young people into these positions is difficult.

The NRI system needs to find ways to identify and promote the value of technical staff. This could include:

- Funding and job security through long-term or ongoing contracts
- Creating fit-for-purpose employment streams for highly skilled technical staff
- Providing and supporting opportunities for cross-training and upskilling to help support career progression
- Ensuring critical mass and succession planning to maintain skill sets and grow expertise.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 115

Thu, Dec 4, 2025, 09:29 AM Australian Eastern Daylight Time  
[ID: sbm397c6dd2e195d3774a130]

Title  
Dr

First Name  
Alec

Last Name  
Jamieson

Organisation  
The University of Melbourne

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The critical skills needed for the NRI workforce, regardless of technical expertise, are effective communication, efficient resource management, and strong community outreach and integration to ensure broader and more diverse impact.

Staff should be able to work collaboratively across disciplines and institutions, communicate complex ideas clearly to different audiences, and manage time, data, and physical resources responsibly.

Equally important is the ability to integrate diverse perspectives and stakeholder needs into decision-making and service design, so that national research infrastructure remains inclusive, user-centred, and responsive to emerging challenges.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 112

Wed, Dec 3, 2025, 02:24 PM Australian Eastern Daylight Time  
[ID: sbm397856217199ab8358a19]

Title  
Prof

First Name  
Frank

Last Name  
Bongiorno

Organisation  
Council for the Humanities, Arts and Social Sciences

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Understanding of:

- the principles of Indigenous data sovereignty and the foundations of ethical research in relation to First Nations peoples
- the role of sound and ethical research in the humanities in underpinning civic belonging and evidence-based policy
- the basic principles and legal obligations concerned with intellectual property

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

It is notorious that workers in the GLAM sector are paid less, and have weaker career structures and poorer job security, than other public sector workers with a similar or lower level of formal qualifications even when they share the same basic position classification. This is not a major incentive to investment in skills and careers on the part of talented and committed workers. The casualisation of such work in universities is on another scale again, and has been so widely discussed, and condemned, that is hardly requires amplification here. The universities' approach to decasualisation - to proliferate teaching-only or teaching-intensive jobs yet only appointing qualified researchers to them (requiring a PhD) squanders research talent and, at its worst, might create another layer of demoralised academic workers. A renewed emphasis on secure jobs, fair pay and stable career structures would do much to strengthen workforce capability and NRI.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 111

Wed, Dec 3, 2025, 01:57 PM Australian Eastern Daylight Time  
[ID: sbm39783d862595ce06811cb]

Title  
Prof

First Name  
Rufus

Last Name  
Black

Organisation  
University of Tasmania

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Beyond technical proficiency, the NRI workforce must demonstrate capabilities that foster collaboration, uphold ethical standards, and adapt to a rapidly evolving research landscape. These skills ensure that infrastructure investments deliver maximum benefit across disciplines, respect cultural protocols, and remain responsive to societal needs. The following areas are critical:

**Research Engagement and Communication**

- Ability to collaborate effectively with researchers across diverse disciplines.
- Strong communication skills to translate complex technical concepts into practical solutions.
- Understanding of research lifecycles and end-user needs, including industry and government contexts.

**Data Governance and Cultural Capability**

- Solid grounding in data governance, privacy, and ethical use of data.
- Understanding of secure systems, encryption, and data protection protocols and familiarity with defence-related compliance standards and foreign interference mitigation principles.
- Cultural capability, including respect for diversity and Indigenous data sovereignty principles.
- Patience and skill in building representative teams and fostering inclusive practices.

**Adaptability and Interdisciplinary Thinking**

- Capacity to learn new tools quickly and operate in interdisciplinary environments.
- Flexibility and problem-solving skills to support small, diverse research communities.
- Ability to navigate rapidly evolving digital research methods and emerging technologies.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**Contextual and Strategic Awareness**

- Deeper knowledge of application areas for research (industry, government, agencies) to ensure relevance.
- Broader national and international experience to understand research context and applicability.
- Critical thinking and holistic perspective to resist narrow instrumentality and maintain alignment with big-picture societal goals.

**Values and Professional Disposition**

- Respect for cultural diversity and commitment to self-determination principles.
- Curiosity, criticality, and capacity for complex interdisciplinarity, skills that remain vital in an era of AI automation.
- Collaborative mindset and maturity in stakeholder engagement.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retaining and growing the NRI workforce requires a strategy that combines stability, professional development, and intellectual engagement. These roles must be recognised as critical to Australia's research ecosystem, offering secure career pathways, opportunities for advancement, and access to cutting-edge projects. The following approaches will help build a resilient, future-ready workforce

**Long-Term Investment and Career Pathways**

- Establish stable, attractive career pathways that recognise research infrastructure roles as a profession, not short-term project support.
- Provide secure positions with clear progression routes and options to specialise or move across domains as technologies and research needs evolve.
- Ensure recognition of NRI roles as critical to research impact, with parity in status and reward structures.

**Sustained Professional Development**

- Guarantee ongoing funding for training, mobility, and upskilling in emerging areas such as AI, trusted research environments, and advanced data methods.
- Create structured mobility programs for placements across agencies and internationally to broaden experience and strengthen networks.

**National and International Connectivity**

- Offer opportunities for staff to contribute to national platforms, participate in cross-institutional communities of practice, and collaborate on major NRI initiatives.
- Recognise that some specialist skills may be scarce in Australia and plan for targeted recruitment from overseas where necessary.

**Graduate Pathways and Talent Pipeline**

- Build deliberate pipelines from graduate capability into the NRI workforce:
  - o Strengthen digital research training for Higher Degree Research (HDR) students.
  - o Develop funded internship and traineeship programs embedded in doctoral development.
  - o Highlight the connection between doing research and enabling research to attract graduates into infrastructure careers.

**Intellectual Engagement and Retention**

- Provide intellectually rewarding roles that allow staff to work on cutting-edge projects and national priorities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Foster a culture of collaboration and innovation, ensuring roles are not purely operational but contribute to shaping research futures.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 110

Wed, Dec 3, 2025, 01:52 PM Australian Eastern Daylight Time  
[ID: sbm3978388a2095c264d967e]

Title  
Prof

First Name  
Grainne

Last Name  
Moran

Organisation  
University of New South Wales

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Workforce must have cross-disciplinary, foundational skills to operate flexibly across research infrastructure contexts, not just deep technical specialisation.

Core skills include:

- Understanding of data analysis, AI/ML concepts and the ability to apply emerging tools for research productivity.
- Data stewardship and management: data cleaning, applying FAIR/CARE principles etc
- Cybersecurity and research-data governance: secure data handling, identity management
- Communication, relationship management and bridging skills: ability to liaise with domain scientists, clinicians, industry, teach/mentor users, translate technical outputs for non-technical stakeholders.
- Strategic and operational awareness: project costing, budget estimation, workforce planning, sustainability, alignment to national research and institutional priorities.
- Interoperability and reproducibility mindset.
- Ongoing capability development: Research infrastructure staff work in a fast-moving environment and need to continually refresh their skills as technologies, methods and user requirements evolve.
- Commercial awareness: familiarity with translation pathways, intellectual property and partnership models to support effective industry engagement and translation.
- Standards and quality expertise: Strong research translation relies on robust quality systems. Building workforce literacy in recognised standards (e.g. ISO9001, ISO27001, ISO13485, ISO17025, GLP, GMP) supports reproducibility, strengthens industry confidence and enables Australia to operate effectively at higher TRLs.
- Ethical awareness, be culturally sensitive and communicate respectfully.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

- **Job security and career pathways:** Provide permanent or longer-term contracts via sustained funding. Funding certainty is critical to maintaining core expertise, attracting new talent, and ensuring operational continuity.
- **Recognition and reward:** Acknowledge infrastructure contributions—including software, datasets, and benchmark tools—in promotion and performance frameworks, alongside traditional research outputs.
- **Professional development:** Support continuous learning, especially in emerging areas (AI, cloud, data governance, cybersecurity) and create fellowships or protected time for methods and tool development.
- **Mobility and collaboration:** Encourage staff exchange between academia, industry, and international partners to strengthen capability and innovation, where appropriate..
- **Diversity and inclusion:** Promote equitable participation and inclusive workplace practices.
- **Institutional stability:** Consolidate efforts within a smaller number of stable, well-resourced organisations capable of sustaining medium-term roles with both technical and leadership opportunities.
- **Sustained infrastructure support:** Ensure ongoing funding for maintenance, documentation, and user support of successful tools and platforms.

Establishment of a national NCRIS Fellowship Program is recommended as a way to achieve the above. Such a program would facilitate the recognition, development, and retention of high-performing technical and professional staff. A prestigious, merit-based fellowship would support career progression, elevate the profile of research infrastructure expertise, and foster collaboration across NCRIS capabilities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 109

Wed, Dec 3, 2025, 10:31 AM Australian Eastern Daylight Time  
[ID: sbm397780f30c953d91f361f]

Title  
Dr

First Name  
Georgina

Last Name  
Kennedy

Organisation  
SPHERE Cancer Clinical Academic Group

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Specific technical management pathways similar to what would be considered the 'product manager' role in a typical industry team;

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Recognise technical contributions and track record in evaluation of projects in the same way that academic contributions can be recognised; Flexibility around accounting for time spent in industry to ensure we can hire competitively from both within and external to academic groups; Technical fellowships that give skilled resources sufficient security and 'runway' to produce impactful outputs; Recognition that technical teams need technical management including skills development that sits well outside the wheelhouse of most academic groups; Sufficiently resourcing teams to ensure technical writing skills can be included (separate to development skills) to ensure smooth onboarding and capacity building;

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 108

Wed, Dec 3, 2025, 10:28 AM Australian Eastern Daylight Time  
[ID: sbm39777d87af95d6f30425d]

Title  
A/Prof

First Name  
Linda

Last Name  
Pfeiffer

Organisation  
CQ University - School of Education and Arts

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Understanding of diverse research workflows across disciplines

- Strong communication with non-specialist researchers (regional researchers often work independently)
- Cultural competency and understanding of Indigenous data sovereignty
- Ability to work with community partners and translate research to non-academic stakeholders
- Project management across distributed teams
- Adaptability and problem-solving with limited resources

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

- Job security and stability for research professionals
- Sustained investment and long-term funding to support workforce and innovation
- Recognition of research value, with redeployment of skills positioned as a strategic asset
- Targeted training opportunities, including areas such as data sovereignty and cultural competency
- Enhanced access and frameworks for universities to collaborate more effectively across regions and disciplines

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 107**

Tue, Dec 2, 2025, 06:04 PM Australian Eastern Daylight Time  
[ID: sbm3973f8f892cb649f3e99b]

Title  
Dr

First Name  
Beth

Last Name  
Caruana

Organisation  
NSW Health Statewide Biobank

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Data literacy, critical thinking, quality mindset, ability to work sustainable

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Sustainable funding, greater opportunities for staff exchanges/internships

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 106

Tue, Dec 2, 2025, 05:27 PM Australian Eastern Daylight Time  
[ID: sbm3973d7488b433b848c2ca]

Title  
Dr

First Name  
Jeff

Last Name  
Christiansen

Organisation  
Australian BioCommons

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

In November 2025, over 40 staff (at all levels) within the BioCommons Coordination Hub and Service Delivery teams were invited to provide their views on this question. These teams cover all aspects of the RI workforce, from community / researcher end-user engagement, business analysis, service establishment and operations (both technical and business process related), training, communication and general project operations (e.g. finance, legal etc).

Responses covered the following:

- \* Business and project management skills: to ensure projects are scoped correctly, with realistic and efficient management of financial and personnel resources, and a structured approach to delivery timeframes, including an understanding of agile ways of working.
- \* Communication, Engagement, Collaboration, Negotiation: to ensure all stakeholders are included/consulted and receive timely advice, information and support to ensure their needs are met. RI staff need to be able to translate between technical experts, researchers, and decision-makers.
- \* Customer service and end-user experience (UX) focus: to ensure researchers and other end-users are actively involved in service development and delivery and user needs are always addressed in the design and delivery of infrastructure projects.
- \* Empathy: ability to interpret researcher needs and map them to infrastructure and service solutions.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- \* Digital, data and AI literacy: almost all research infrastructure now has a substantial data and digital component (as well as an increasing AI component) and the NRI workforce should have strong baseline capabilities in these areas.
- \* Decision making - frameworks to enable evidence based and data-driven decisions, and how to identify, understand and address risks.
- \* Research literacy: comprehension of how research is conducted, that it doesn't fit in neat and tidy boxes or slavishly follow the ideal "research data lifecycle".
- \* Professional Awareness: staying engaged with outputs and literature published by others working on other relevant research infrastructure projects, nationally and internationally, and those in adjacent fields (so we avoid re-inventing the wheel)
- \* Change management: ability to adapt to evolving technologies, policies, and user expectations
- \* Strategy and Planning: aligning to National, Funder organisational strategies, roadmaps and KPIs. Business Case Development
- \* Impact mapping - frameworks to understand the Impact pathway and identify how RI is being used in useful and impactful ways
- \* Diversity, Inclusivity: Understanding how to work inclusively and respectfully with diverse communities, including underrepresented groups

Note, There are many existing frameworks and competency profiles that have been developed to inform this question. For example:

- Competencies for bioinformatics core facility scientists:  
<https://academic.oup.com/bioinformaticsadvances/article/5/1/vbaf206/8255757>
- RITrain: <https://competency.ebi.ac.uk/framework/ritrain/1.0>
- ARISE: <https://competency.ebi.ac.uk/framework/arise/0.5>
- Career paths for microscopy core facilities:  
<https://onlinelibrary.wiley.com/doi/10.1111/jmi.13307>

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

In November 2025, over 40 staff within the BioCommons Coordination Hub and Service Delivery teams (at all levels) were invited to provide their views on this question. These teams cover all aspects of the research infrastructure workforce, from community / researcher end-user engagement, business analysis, service establishment and operations (both technical and business process related), training, communication and general project operations (e.g. finance, legal etc). Responses covered the following:

To retain staff:

- \* Job security: For NCRIS projects, a mechanism that provides advanced notice (of either change or continuity) through some form of incentive to the government to ensure decisions are in place 6 months before the end of each 5 year (or less) funding cycle (for example, automatic continuity of funding at the same level until, say, 6 months after notice of a reduction or cessation of funds). This would enable staff to have job security,

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

and for NRIs not to lose their highly skilled and experienced workforce, due to delays in decisions to continue infrastructure investments with a further cycle.

\* Improved (visible) career paths/opportunities and reward structures tailored to the type of roles the RI workforce has - to include opportunities for growth and promotion, defining role types (e.g. training officer, data steward, research software engineer, infrastructure manager...) with clear expectations and levels.

\* Offering funding and time for credentialled professional training in essential skills such as those outlined in the previous question

\* Competitive salaries, benchmarked and commensurate with academic, government and industry equivalent roles.

\* Ongoing professional development, mentoring. Build professional development into workloads (e.g. 10% of time for training, mentoring, or contributing to communities of practice).

\* Cross-facility/industry/government/international staff exchange or secondment opportunities would help sustain engagement and build new capabilities across the NRI workforce.

\* Recognition: there should be clear mechanisms to recognise the contribution of NRI workforce to successful delivery of research outcomes and impact. At present, there is a tendency to view the NRI workforce as secondary, auxiliary, or supporting roles to the research workforce itself.

\* Opportunities for staff to be able to recognise and articulate the "why" for their priorities/activities: staff need to see the impact of their work on national outcomes

\* Opportunities to share success stories, and recognise and celebrate diverse career paths across all of NRI.

\* Workplaces which actively promote work-life balance and flexible work arrangements.

\* Embed something like the Technician Commitment in all organisations that operate NRI.

To add new capabilities to the current NRI workforce:

\* Recruit more actively from outside of academia when relevant. The skills needed to build and operate NRI are often different from those needed to succeed in research.

\* Facilitate multiple transitions to and from parallel academic and industry career paths. Staff who shift from an academic research role to a role in the NRI workforce should be able to return to academia; and similarly with industry. An individual should be able to move in and out of academic, industry, and infrastructure roles throughout their career.

\* Offering funding and time for credentialled professional training in essential skills such as those outlined in the previous question

\* Leadership training for managers on inclusion, mentoring, and communication.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 104

Tue, Dec 2, 2025, 12:29 PM Australian Eastern Daylight Time  
[ID: sbm3972c63b27166591059df]

Title  
Ms

First Name  
Kim

Last Name  
Mintern-Lane

Organisation  
Stawell Underground Physics Laboratory (SUPL)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

SUPL represents a nationally unique technical workforce operating at the intersection of underground mining operations and research infrastructure.

SUPL identifies three critical skills domains of national importance:

1. Implementation of a risk management framework, both strategic and operational, to provide an enduring and safe working environment.
2. Relationship management with formal and informal stakeholders.
3. Communication and interpersonal skills.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention requires:

1. Recognition of specialist technical roles (not only academic researchers) as core NRI positions.
2. Support for regional pipelines for research and other technical roles, enabling stable career paths in national infrastructure hubs outside of capital cities.
3. Supporting cross-facility training programs (e.g. SUPL could leverage training from ANSTO).
4. Longer funding cycles.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 103

Tue, Dec 2, 2025, 11:14 AM Australian Eastern Daylight Time  
[ID: sbm397281531343b45484cab]

Title  
Dr

First Name  
Tony

Last Name  
Willis

Organisation  
Australian Council of Deans of Science

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

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 to retain staff and add to new capabilities to the current NRI workforce?

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.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 101

Mon, Dec 1, 2025, 06:01 PM Australian Eastern Daylight Time  
[ID: sbm396ed0576b16ce2ba1504]

Title  
Dr

First Name  
Olga

Last Name  
Shimoni

Organisation  
RNA Innovation Foundry at The University of Western Australia

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Strong competencies in quality assurance and operational excellence are essential to ensure consistency, reliability, and trust. At the RNA Innovation Foundry, we have invested significantly in this area by implementing an industry-standard electronic laboratory notebook system and recruiting a staff member with over 20 years of QMS experience in biomanufacturing. Upskilling our team to effectively use these systems has required months of dedicated effort and substantial resources, but this investment is critical for delivering the reproducible, traceable results that researchers and industry require, particularly as they increasingly collaborate across multiple facilities with expectations of comparable standards. It is also very important for scaling up, eg. Going from preclinical to clinical trial-grade material.

Also critical are skills in stakeholder engagement and research translation. The workforce must be adept at understanding researchers' objectives, providing strategic advice on experimental design and methodology, and connecting to complementary expertise or regulatory bodies. Business acumen is also essential. At the RNA Innovation Foundry, our Business and Innovation Manager plays a vital role in supporting intellectual property considerations, legal negotiations, and contract management. Their expertise is invaluable as we work with diverse partners from academia and industry. Strong project management capabilities, resource allocation skills, and financial planning are among the business competencies our staff possess. Finally, the ability to well communicate our services and our impact to diverse audiences is important. Communication is proving key to the long-term viability of research infrastructure.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

We need to focus on career sustainability and growth. Job security is key, with staff needing confidence that their roles have long-term viability, not subject to unpredictable

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

funding cycles. Contracts should reflect the long-term nature of infrastructure operations, supported by funding models that allow stable employment. Beyond security, we must create genuine pathways for professional advancement and development, upskilling in technical and leadership development opportunities, helping staff build expertise valued within and beyond the NRI sector. Salary structures must remain competitive with alternative career paths. When talented team members transition to industry or other roles, this should be recognised as a fantastic outcome, meaning that we've developed highly capable professionals who are valued and sought after!

Building organisational flexibility is equally important. Staff capabilities should not be confined to narrow technical silos. We help our staff become more adaptable by cross-training, exposure to different aspects of facility operations, and opportunities to contribute to strategy. Effective delegation, clear ownership of key functions, and genuine recognition for contributions strengthen staff satisfaction and retention. Our university policies, particularly around salaries and employment conditions, should acknowledge that infrastructure facilities often need to attract staff with specialised industry experience.

We want our staff to feel valued, challenged/extended, and also supported in their professional growth. This will build the resilient, skilled workforce that our research infrastructure needs.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 100

Mon, Dec 1, 2025, 05:59 PM Australian Eastern Daylight Time  
[ID: sbm396ecdef181648253b818]

Title  
Prof

First Name  
Paul

Last Name  
Roe

Organisation  
James Cook University

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

- An understanding of data stewardship and governance, including FAIR and CARE principles, the Framework for Governance of Indigenous Data and any additional developments in the area of data stewardship and governance.
- Digital literacy and computational skills, including an awareness of and willingness to use Artificial Intelligence and/or Machine Learning where appropriate.
- Understanding the responsible use of Artificial Intelligence and Machine Learning and its transparency requirements.
- The ability rapidly learn and adapt to new tools and methodologies
- The ability to teach, train, communicate and co-design effectively with end-user researchers
- Broad-based expertise that enables them to work across multiple NRI facilities and domains
- Project management, community engagement and co-design skills.
- A willingness and ability to initiate and engage in interdisciplinary communication, ensuring STEM-HASS integration.
- Ability to initiate and engage in Industry collaboration and translation capability.
- Cultural capability, especially in Indigenous partnerships and working in regional/remote environments.
- An awareness and understanding of cybersecurity and privacy management—critical for health, environmental and Indigenous datasets.
- Translational literacy regarding how infrastructure supports industry and communities via contributing to research translation.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

The retention of staff needs to recognise the differing needs of staff dependent on career aspirations and personal circumstances. With that in mind, a combination of the following suggestions should be available to staff depending on their career and personal goals.

- Crossover roles between technical and academic pathways - an approach that is already emerging in some institutions.
- Permanent or long-term employment models.
- Career pathways and opportunities for NRI specialists (technical, managerial and translational) that are obvious and well-understood.
- Mobility and secondment programs across NRI facilities, universities, industry and government.
- Regional loadings and incentives to attract and retain staff in northern Australia.
- Training academies or micro-credential frameworks for NRI skills (HPC, data governance, instrumentation, field research, AI).
- Structured pathways for Indigenous employment pipelines in NRI facilities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 99

Mon, Dec 1, 2025, 05:26 PM Australian Eastern Daylight Time  
[ID: sbm396eb0266116b672c4d40]

Title  
Prof

First Name  
Simone

Last Name  
Warner

Organisation  
Agriculture Victoria Research, Agriculture Victoria, Department of Energy, Environment and Climate Action

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Agriculture Victoria considers a mix of technical expertise and other critical skills are important in providing the foundation for job performance and longer-term career success. A well-rounded professional who possesses both technical expertise and strong critical skills is more likely to thrive in dynamic, interdisciplinary environments. Other critical skills (sometimes referred to as 'soft skills') include behaviour, attitude, and interpersonal interactions, often captured as communication, teamwork, leadership, time management, emotional intelligence, adaptability, and problem-solving abilities.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Agriculture Victoria considers the following areas key to retain and add new capabilities:

- Clear career pathways that are flexible, secure and accessible
- Cross-discipline learning and development opportunities

Agriculture Victoria's focus on STEM pathways, regional training, and cross-disciplinary collaboration supports the delivery of new capabilities critical to the present and future NRI workforce.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 96

Mon, Dec 1, 2025, 01:21 PM Australian Eastern Daylight Time  
[ID: sbm396dcf486622686d9ef7a]

Title  
Prof

First Name  
Ivan

Last Name  
Marusic

Organisation  
The University of Melbourne

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Regardless of technical expertise, the NRI workforce must combine strong collaborative, operational and communication skills with the ability to act as translators between researchers, academia and industry, and to articulate the value and impact of the capabilities they support. Critical skills include stakeholder engagement, teamwork, community building and the ability to foster trust, co-design initiatives, and support and upskill end-users of research infrastructure. Strategic planning, cross-disciplinary thinking, adaptability, and quality control and assurance (including familiarity with ISO and NATA requirements and industry expectations) are essential for navigating complex research environments. Operational and business acumen – such as finance and accounting (pricing and costing, forecasting, budgeting, financial reporting) and project management – is also required to ensure sustainable and effective infrastructure operations. The workforce should demonstrate leadership, mentoring capability and professional behaviours, alongside a commitment to the long-term societal impact of research infrastructure.

NRI staff must also demonstrate cultural competence, particularly in relation to Aboriginal and Torres Strait Islander knowledge systems, Indigenous Data Governance and participatory approaches, and maintain a strong commitment to equity, diversity and inclusion. Ethical awareness – including principled research practices, data governance, FAIR/CARE literacy and emerging AI ethics – is essential.

Finally, proficiency in digital and data literacy, informatics, cybersecurity and computing – including AI – is increasingly important to ensure the workforce can effectively leverage modern technologies and maintain the accessibility, integrity and sustainability of national research infrastructure.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retaining and strengthening the NRI workforce requires clear career pathways, competitive remuneration, and sustained investment in people. Structured progression, recognition mechanisms, mentorship, and succession planning ensure staff feel valued and can see tangible opportunities for advancement. Providing leadership pathways, performance reviews aligned with specialist roles, and opportunities to train and upskill end-users also helps build engagement and a versatile, future-ready workforce.

While individual institutions and NRIs currently provide localised training and development, access to nationally coordinated training programs—such as the former Victorian Platform Technology Network (VPTN), the Academy for the Collaborative Research Infrastructure (ACRI), and the UK Technicians Commitment—would strengthen workforce capability at scale. National internships, secondments, joint appointment opportunities and exchange programs foster cross-disciplinary collaboration, broaden networks, and facilitate the sharing of expertise across institutions, sectors, and countries.

Retention and capability-building also depend on fostering purpose, mission, and access to modern infrastructure, which provide stimulating and meaningful work at the forefront of research. Embedding ethical and culturally informed practices—particularly Indigenous Data Governance, co-design, and governance participation—strengthens commitment, aligns roles with societal priorities, and builds capability in areas of national need. Staff must also be supported to develop and maintain technical and digital skills in data management, AI, cybersecurity, and open science, as well as cross-disciplinary, strategic, and systems thinking.

Long-term funding stability and job security are essential to create an environment where highly skilled, culturally competent, and mission-driven staff can thrive. A culture that rewards collaboration, supports professional development, and encourages national coordination will further enhance retention and enable continuous capability uplift across Australia's NRI workforce.

At the University of Melbourne, the introduction of an Academic Specialist workforce category in 2013 has been pivotal in establishing a meaningful and well-defined career path for research infrastructure professionals. This category, aligned with the academic workstream but with KPIs tailored to RI roles, has led to increased stability—evidenced by higher promotion rates across all levels (A-E) and improved retention. A centrally managed program supporting the salaries of a core subset of the research infrastructure workforce has further contributed to stability. We continue to explore mechanisms to recognise and develop our RI workforce, including peer-to-peer learning and collaboration, excellence awards and years of service recognition dedicated to research infrastructure specialists, and see strong potential for national coordination of similar initiatives.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 95

Mon, Dec 1, 2025, 12:23 PM Australian Eastern Daylight Time  
[ID: sbm396d9ad72f6b34faff4af]

Title  
Mr

First Name  
Anthony

Last Name  
Curro

Organisation  
CRC for Developing NA

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Core skills include strong relational capability, enabling staff to build trust with communities, researchers and industry partners, especially in culturally diverse regions. Workforce members require data ethics and governance literacy, with understanding of Indigenous Data Sovereignty and consent protocols. They must also demonstrate translation capability and systems thinking, enabling them to connect data and infrastructure to real-world outcomes. Collaboration, adaptability and long-term learning are essential as NRI roles increasingly span multiple disciplines and regional contexts.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention is strongest where staff roles are anchored to long-term, mission-based programs that provide stability and clear purpose. Multi-year funding aligned with national priorities such as Net Zero, sovereign capability and Indigenous data governance supports this continuity.

Attraction and capability-building should be supported by structured pathways from school through VET and universities into NRI roles, with a focus on regional and Indigenous workforce pipelines. On-the-job learning, mobility across facilities and opportunities to work at interdisciplinary intersections further strengthen retention. Embedding staff in distributed institutions like the CNA enhances long-term engagement through place-based relationships and real-world research contexts.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 94

Mon, Dec 1, 2025, 12:19 PM Australian Eastern Daylight Time  
[ID: sbm396d96961c6b43a1e31ed]

Title  
Mr

First Name  
Nick

Last Name  
Jenkins

Organisation  
ARDC

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Software skills and data analytics. With the rise of cloud computing, hardware is now software configurable and everything in the DRI 'stack' now has a software component. But maturity in the sector is woefully lacking - specific pockets of high capability exist but demand vastly exceeds supply and many researchers are producing substandard, non-reproducible infrastructure and methods. Data analytics is developing faster in discipline specific areas but will need to accelerate rapidly to responsibly apply AI/LLM's in all disciplines.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Define and support a career path that recognises technical specialist expertise in digital infrastructure (particularly software). Fund fellowships in the model of the UK Software Sustainability Institute : <https://www.software.ac.uk/programmes/fellowship-programme>

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 91

Mon, Dec 1, 2025, 11:53 AM Australian Eastern Daylight Time  
[ID: sbm396d7f376122baf039725]

Title  
Dr

First Name  
Meredith

Last Name  
Ross

Organisation  
WEHI (Walter and Eliza Hall Institute of Medical Research)

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Essential skills that are not necessarily technical but complement technical skills include:

- Scientific method: an ability to form testable hypotheses, design controlled experiments, and interpret data logically.
- Critical thinking: recognising flawed logic, over-claimed results, poor controls, poor design, and unjustified conclusions.
- Statistical reasoning: an understanding of variability, reproducibility and the limits of what data can actually show.
- Information literacy: an ability to evaluate source quality, find reliable information, and distinguish evidence from hype.
- Scientific integrity: all team members must maintain the highest standards of data integrity and professionalism, supported by robust quality management systems (QMSs). These skills are fundamental for robust science but training in these skills is variable across higher education institutions. Education of these skills needs to become more explicit, while remaining linked to practical tasks to keep it relevant and usable.

Other critical skills that all team members should have some level of competence with include:

- Project management: Both traditional waterfall-based models but also more modern models such as agile or modular approaches that are more relevant to NRI settings. Effective resource allocation is also key for the sustainability of NRI operations.
- Stakeholder management: Customer service is particularly important when managing expectations of different research groups/clients. This skill should be well-developed and supported with training for outward facing roles.
- Communication skills: This could include written or verbal discussions or presentations with varied audiences (users, leadership, stakeholders). Internally, this includes formulating clear standard operating protocols (SOPs) and robust reporting for QMSs.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Externally, it is imperative that NRIs communicate their value to the public and to other researchers, as described in more detail in Question 9.

- Innovation: NRI facility staff should be experts in their given technology, have curiosity for new complementary technologies and be able to innovate/create novel technologies, IP and approaches.
- Commercialisation: As described in Questions 10-12, all NRI staff need a good level of familiarity of the for-profit sector, with certain roles further benefitting from more direct first-hand experience.
- Decision making skills: Many NRI roles will require rapid problem solving and prioritisation in resource-limited environments under time pressure.
- Data management: Best practices with storage, backup and archiving, and privacy and security.
- Knowledge of safety and compliance regulations.

Other critical skills that are essential to possess within each NRI team include:

- Strategic thinking: long term planning for financial sustainability, growth and impact.
- IT competency: understanding networked instruments, software requirements for operations, reporting, scheduling, analytics.
- Financial literacy: budgeting, cost modelling and cost recovery.
- People management: supervision of diverse staff, delegation, workload balance.
- Business management: resource allocation, scheduling, vendor relationship management, service contract negotiation.
- Facility management: maintenance, utilisation tracking, and lifecycle management of equipment.

Opportunities to develop these non-technical skills are essential for retention of staff, as detailed in Question 8 and building research-industry collaborations in Question 10. These skills should therefore not be regarded as optional extras or static- they are fundamental to effective, sustainable operation of NRI facilities.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Loss of highly trained and thereby unique staff is a major risk for highly complex projects undertaken at NRIs. In addition, staff at NRIs are diverse in terms of career stage, ambition, and external commitments, so a one-size-fits-all approach would be misguided. The use of a variety of interventions is important to reduce loss of key staff:

- Job insecurity is a major hurdle to retention of highly trained staff in the NRI sector. A mechanism that provides long-term, stable funding for NRIs would counter this challenge and we discuss the importance of long-term vision for infrastructure in Question 12.
- Pay rates relative to private industry are also likely to be a major driver of loss of key personnel, so fair remuneration is important, although it is difficult to compete with industry rates. However, NRIs could compete with industry by providing a more values-driven, vibrant, intellectually engaging environment, and potentially this could become a two-way street with NRIs recruiting from industry to enrich our talent pool and knowledge base. We should aim to be the best globally in strategically selected areas to attract and retain top talent.
- Opportunities for career advancement and skill development are crucial for job satisfaction in many industries. However, professional development is often particularly important for highly educated staff at NRIs, and even more important at NRIs with high volumes of contracted service-focused projects, which could feel routine to highly trained staff.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Translational contributions need to be better recognised within academia. Traditional academic performance metrics reinforce a publication-centric culture that actively discourages industry engagement, resulting in regular loss of the most capable translational researchers. Alternative key performance indicators (KPIs) such as charge-out revenue, patents, licenses, and other translational milestones should be prioritised.

It is important to reflect on the fact that, when key personnel are lost to either budget constraints or resignation, the impact on NRI productivity is substantial. Finding appropriate candidates and rapidly scaling back up is incredibly challenging. The specialised skills needed are often not readily available in the talent market, and new hires often require 6-12 months of training before they can contribute effectively. This is why the short-term, project-based grant funding model does not work for infrastructure roles, and it is important to advocate for baseline funding models that guarantee continuity for critical roles and introduce competency frameworks to measure success, as discussed in Question 12.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 89

Mon, Dec 1, 2025, 11:30 AM Australian Eastern Daylight Time  
[ID: sbm396d69dc59c4cb8105700]

Title  
Dr

First Name  
Angela

Last Name  
Maharaj

Organisation  
Climate science strategy and partnerships section, Department of climate change, energy, the environment and water

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

We recommend that the National Partnership for Climate Projections' HPCD statement be considered as input into this question:  
<https://www.dcceew.gov.au/sites/default/files/documents/hpcd-storage-infrastructure-needs-australian-climate-projections-science.pdf>

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

We recommend that the National Partnership for Climate Projections' HPCD statement be considered as input into this question:  
<https://www.dcceew.gov.au/sites/default/files/documents/hpcd-storage-infrastructure-needs-australian-climate-projections-science.pdf>

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 88

Mon, Dec 1, 2025, 09:48 AM Australian Eastern Daylight Time  
[ID: sbm396d0c8e9d22fc1f44995]

Title  
Dr

First Name  
Owen

Last Name  
Myles

Organisation  
Australian Academy of Technological Sciences and Engineering

In what capacity are you responding?  
A representative of an organisation or group

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Staffing at National Collaborative Research Infrastructure Strategy (NCRIS) facilities has been falling, with staffing numbers corresponding to a drop in user numbers. If the Federal Government wishes to expand the NRI user base, the NRI workforce needs to be expanded and supported. As mentioned in our previous submissions to the NRI Roadmap consultation and the NRI Workforce Survey, long-term planning and funding is needed to support the NRI workforce and retain talented staff members. Long-term funding models, that support the workforce for the life of the infrastructure, will help ensure staff feel secure in their employment and help to develop career pathways.

Improving workforce diversity can also help to grow the NRI workforce, creating resilience to attrition of specialised positions. While women already make up 40% of the NRI's technical and managerial staff, growing representation from women, as well as Aboriginal and Torres Strait Islander people and those from regional backgrounds, could help to boost the workforce. Linking NRI facilities with the recommendations of the Diversity in STEM review, and Diversity programs like ATSE's Elevate: Boosting Diversity in STEM and Industry Mentoring Network in STEM (IMNIS) could help to recruit a more diverse workforce.

Links:

NRI Roadmap Consultation submission: <https://atse.org.au/what-we-do/strategic-advice/submission-to-the-2026-national-research-infrastructure-nri-roadmap-consultation-survey/>

NRI Workforce Survey submission: <https://atse.org.au/what-we-do/strategic-advice/submission-to-the-national-research-infrastructure-workforce-survey/>

Elevate: <https://atse.org.au/what-we-do/pathways-into-through-stem/elevate/>

IMNIS: <https://atse.org.au/what-we-do/pathways-into-through-stem/imnis/>

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 85

Sun, Nov 30, 2025, 07:09 PM Australian Eastern Daylight Time  
[ID: sbm3969e6291affb16052315]

Title  
Dr

First Name  
Louise

Last Name  
Winteringham

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
analytical skills, problem solving, collaboration, project management, regulatory and governance knowledge, innovation and development, adaptability, good communication.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Provide ongoing training in non-technical skills, provide job security, insure there is a clear pathway for career development.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 83

Sat, Nov 29, 2025, 06:05 PM Australian Eastern Daylight Time  
[ID: sbm396375f5554afdc3565fc]

Title  
Dr

First Name  
Tom

Last Name  
Honeyman

Organisation  
UNSW, Sydney

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Regardless of technical expertise, the NRI workforce needs strong professionalisation skills, including service orientation, project and service management capability, communication and documentation practices, and a reproducibility mindset—areas that are unevenly distributed across NCRIS. Equally critical is governance, ethical and cultural capability, including governance literacy beyond data governance, ethical reasoning, Indigenous cultural capability, and understanding and operating within governance frameworks that link infrastructure to the communities it serves. Other skills such as collaboration, adaptability and learning agility are broadly needed across all workforces, but these two domains—professionalisation and governance capability—represent the most significant and distinctive gaps for the NRI workforce.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

The most effective way to retain staff and build new capability in the NRI workforce is to address employment stability first, by moving away from short-term contracts and signalling longer-term funding horizons so staff can plan sustainable careers. This should be complemented by stronger career pathways and progression frameworks, ensuring that technical and service-oriented roles have clear routes for advancement and that transitions into the broader research and industry workforce are visible and supported. Finally, mobility and exchange programs across NCRIS facilities, universities, industry and international partners would broaden experience, reduce stagnation, and help NRI staff build the capabilities required for emerging technologies and research needs.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 80

Fri, Nov 28, 2025, 06:11 PM Australian Eastern Daylight Time  
[ID: sbm395f3ba815a967eab5982]

Title  
Prof

First Name  
Markus

Last Name  
Barth

In what capacity are you responding?  
An individual

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

- Provide long-term funding and employment stability
- Invest in workforce development and recognition
- Support sustainable career pathways

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 79**

Fri, Nov 28, 2025, 05:10 PM Australian Eastern Daylight Time  
[ID: sbm395f2e6aa5fff726ed524]

Title

Other: "Emeritus Professor"

First Name

Gottfried

Last Name

Otting

Organisation

The Australian National University

In what capacity are you responding?

A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

communication skills

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

bring staff in direct personal contact with users

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 78**

Fri, Nov 28, 2025, 04:58 PM Australian Eastern Daylight Time  
[ID: sbm395f22dbb9a936c06195b]

Title  
Prof

First Name  
Leigh

Last Name  
Johnston

Organisation  
University of Melbourne

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Communication skills, broad scientific curiosity and understanding.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Provide longevity for their funding. Don't restrict them from research grant opportunities.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 77**

Fri, Nov 28, 2025, 03:48 PM Australian Eastern Daylight Time  
[ID: sbm395ee3812ca9a123e303a]

Title  
Dr

First Name  
Louise

Last Name  
Rabbitt

Organisation  
Garvan Institute of Medical Research

In what capacity are you responding?  
A representative of an organisation or group

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Provide well designed internal training programs for research support professionals that lead to defined career pathways, with external/National recognition so that skills are transferrable. Australian BioResources, a division of the Garvan Medical Research Institute provides an exemplar in this space.

# 76

Fri, Nov 28, 2025, 01:09 PM Australian Eastern Daylight Time  
[ID: sbm395e51f0c8b3ceec5b763]

Title  
Ms

First Name  
Lucía

Last Name  
Gamarra Cuba

Organisation  
ARC Centre of Excellence for the Weather of the 21st Century

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

We need skilled software engineers who specialise in developing, maintaining, configuring and enhancing software and data management solutions to meet Australia's needs and the challenges posed by sophisticated, higher-resolution weather and climate models and the immense volume of data they generate.

Some critical skills for the community must include (but are not limited to):

- Experience in geospatial and geoscientific computing.
- Use of collaborative coding platforms and methodologies (e.g. GitHub).
- Experience in package management and deployment pipelines to ensure reproducibility and traceability for all executables and datasets created by NRI (e.g. Conda, Spack).
- Knowledge of numerical methods used to solve dynamical equations on massively parallel computing platforms.
- Ability to debug and optimise NRI's models on massively parallel platforms.
- Ability to explore, interrogate, and integrate existing data assets on various NCRIS facilities, including NCI, TERN, and AURIN.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Providing certainty in the continuity of funding and investment in teams and facilities, including skilled software engineers to develop and maintain high-quality software infrastructure, is paramount.

An example for the successful implementation of some of these principles in our area is the ACCESS-NRI, which plays a pivotal role in the weather and climate science community through its targeted employment of skilled software engineers who ensure robust, efficient, and reliable software infrastructure, enabling researchers to maximise the value and productivity of the computational resources provided by NCI and PAWSEY. Continued funding for this facility must be secured.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

A second example is the employment of climate science liaison staff at the NCI supercomputing facility, which enables the direct connection between the facility and researchers from universities and publicly funded research agencies.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 75

Fri, Nov 28, 2025, 12:52 PM Australian Eastern Daylight Time  
[ID: sbm395e41c6755ec154d7fae]

Title  
A/Prof

First Name  
Kate

Last Name  
Michie

Organisation  
Australian Structural Biology Computing

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Good record-keeping: clear notes, versioned files, and simple checklists so work can be repeated and checked.

Standard ways of working: write and follow sensible step-by-step procedures; keep them up to date.

Data care: name, store and back up data; keep track of where it came from; share it appropriately.

Privacy and cultural respect: handle confidential and clinical data safely; follow Indigenous data protocols.

Quality and calibration: routine checks, controls and error-spotting; fix problems before results go out.

Basic study design and stats: plan measurements well, avoid bias, and read results cautiously.

Safety and risk: know hazards, report incidents, and practise good cyber and physical security.

User support and teaching: explain things in plain language; write short guides; deliver short trainings.

Communication: listen first, set expectations, and give timely updates to users and partners.

Problem solving: help users match their question to the right tool, facility or method.

Collaboration: work well across institutions and with industry; share credit fairly.

Service and project skills: triage requests, schedule work, and track simple metrics like time to first result.

Ethics and integrity: manage conflicts of interest and follow relevant approvals.

Accessibility and inclusion: design access and training that work for diverse users and regions.

Sustainability: minimise waste and energy use; plan for equipment lifecycle and reuse.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Interoperability: use common formats so results move easily between facilities and systems.

Procurement and budgeting basics: buy wisely, maintain well, and avoid lock-in.

Continuous improvement: ask for feedback, review what worked, and improve the service over time.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Provide stable jobs. Fund multi-year base positions for facility scientists, technicians, engineers, data and software specialists, and user support. Avoid short, stop-start contracts.

- Create clear career paths. Establish technical promotion tracks equivalent in status to academic tracks. Recognise outputs such as uptime, new methods, software, datasets, training delivered and verified user outcomes.
- Pay competitively. Set national pay bands with allowances for scarce skills. Review salaries regularly against industry to prevent attrition.
- Protect time to innovate. Give staff scheduled time for method development, maintenance and documentation, not only service delivery.
- Fund maintenance properly. Budget for software refactoring, calibration, spare parts and documentation so tools and instruments remain reliable.
- Build the skills pipeline. Offer apprenticeships, trainee programs and micro-credentials for technicians and early-career staff. Run rotations across labs, facilities and data services.
- Use secondments and exchanges. Support 3 to 12 month placements between universities, NCRIS facilities, hospitals, government labs and industry so skills spread and collaborations form.
- Invest in training others. Resource a national library of short guides, videos and worked examples. Recognise teaching and mentorship in performance and promotion.
- Make movement easy. Recognise prior service across institutions, streamline hiring and visas, and allow portable roles where staff can serve multiple sites.
- Support good management. Train facility leads in budgeting, scheduling, people leadership and safety so teams have clear priorities and fair workloads.
- Keep work safe and inclusive. Provide flexible work options where possible, reasonable travel support for regional users, and a clear code of conduct.
- Measure what matters. Track retention, user satisfaction, time to first result, and reuse of methods and materials. Use these measures to adjust staffing and training.
- Align funding with workforce plans. Require each national capability to publish a workforce plan with roles, skills gaps, succession and training actions, and fund against that plan.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 73

Fri, Nov 28, 2025, 09:19 AM Australian Eastern Daylight Time  
[ID: sbm395d7e870c5e2bdd154e9]

Title

Other: "Coordinated response"

First Name

International Environment, Reef and Ocean Division

Last Name

DCCEEW

Organisation

DCCEEW - International Environment, Reef and Ocean Division

In what capacity are you responding?

A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The draft Sustainable Ocean Plan highlights the key role played by investments in national research infrastructure in advancing Australia's ocean knowledge, such as through IMOS and the Marine National Facility. As demonstrated by the proposed new NRI definition, a central component of this infrastructure is the workforce, and it is important that the right skillsets are supported in this workforce to ensure key ocean NRI are maintained and improved upon. In addition to research skills, roles often require project, team and budget management skills, including for quality assurance purposes; regulatory compliance skills (e.g. WHS, environmental); and interpersonal and stakeholder engagement skills.

The draft Sustainable Ocean Plan also identifies ocean literacy as an essential foundation for achieving the vision of Australia's sustainable ocean economy out to 2040. Future NRI workforce development could be targeted to proactively support young people in pursuing careers in research to support our ocean economy, help develop pathways to broader ocean economy roles, and support ocean literacy programs as part of vocational training and tertiary education institutions. This approach should encourage marine science tertiary education and training for students that is quantitative and cross disciplinary, and aligns with the needs of industry and governments.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Making NRI roles more interesting, giving workers more influence, and providing new career progression possibilities will help attract and retain staff. Importantly, the sustained nature of NRI funding should allow for the creation of longer-term marine research roles that can attract and retain staff by providing job security.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Adding new capabilities to the current NRI workforce could be delivered through leadership and mentorship programs, or vocational and tertiary training. Secondments to industry or government would also provide exposure to the broad skills required for NRI roles, and might lead to new career pathways that would attract additional NRI workforce. Improving infrastructure to deliver ocean literacy could help add new ocean knowledge capabilities to the current NRI workforce.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 72

Thu, Nov 27, 2025, 03:16 PM Australian Eastern Daylight Time  
[ID: sbm39599fa8483e73291aa89]

Title  
Dr

First Name  
Christopher

Last Name  
Adda

Organisation  
La Trobe University

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills should include those that would be required to operate a business:

- Stakeholder management collaboration and teamwork skills to manage client expectations, work effectively in multidisciplinary teams across institutions and sectors and to build trust and foster inclusive environments.
- Project and program management including familiarity with governance frameworks and compliance requirements, risk management, planning, prioritization and resource management.
- Data literacy and digital competence including research data management skills and principles (FAIR and CARE), cybersecurity and privacy standards, and use of digital tools, such as AI.
- Communication, leadership and influence skills to advocate for resources, enable workforce development, to become role models, communicate complex ideas to a range of audiences. Understanding of the political and sector landscapes with the ability to adapt to a changing environment including, political, financial, etc.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Staff retention:

- Establish clear career pathways with defined roles and titles for staff that operate in the 'third space' between academic and professional colleagues.
- Ensure staff feel valued for their contributions, rather than failed academics, by highlighting how their work contributes to research outcomes and national priorities, supporting proper remuneration and creating communities of practice such as the Academy for Collaborative Research Infrastructure (ACRI).

New capabilities for the workforce:

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Establish professional development opportunities and training programs in data management and principles, leadership and project management.
- Create communities of practice and sponsor for the NRI workforce to become members of organisations such as ACRI.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 71

Thu, Nov 27, 2025, 01:53 PM Australian Eastern Daylight Time  
[ID: sbm3959538c530f3d25ea13e]

Title  
Dr

First Name  
Edoardo

Last Name  
Tescari

Organisation  
Melbourne Data Analytics Platform (MDAP), The University of Melbourne

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Effective communication, collaboration, and engagement skills are essential to connect the NRI workforce with users of the infrastructure and maximise the value of national research facilities. The “build it and they will come” approach is no longer sufficient in the era of complex research tools and techniques. The NRI workforce must increasingly act as translators between researchers, academia and industry. In this context, “people” skills are just as important as technical expertise.

In summary:

- Ability to work across disciplines; cross-domain communication skills.
- Ability to train and upskill RI users, alongside supporting RI.
- Ability to adapt to diverse project and work environments.
- Deep understanding of principled and ethical research practices (particularly around use of data, of growing importance with GenAI).

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

To attract and retain highly skilled staff, the NRI workforce must be offered competitive salaries alongside clear and secure career pathways. Until recently, public institutions and universities could distinguish themselves by providing flexibility, stability, and a strong sense of purpose - benefits that were often lacking in industry. However, the landscape has shifted significantly since COVID-19 and with the rise of AI. Today, many companies attract top talent not only by offering salaries two to three times higher than those in the public sector but also through stimulating work environments and tailored incentives. To remain competitive, the public sector must adapt and evolve.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

A successful example of this evolution is the Melbourne Data Analytics Platform (MDAP), a team of research data and academic specialists who enable data-intensive, data-informed, and collaborative research across the University of Melbourne. MDAP staff are appointed as academics, benefiting from higher salaries than professional staff and a well-defined career progression pathway - from Level A (Research Fellow) to Level E (Professor). This model has drawn national attention, with other Australian universities, such as QUT and ANU, seeking to replicate its success.

Finally, stronger collaboration and coordination across national institutions (e.g., through internships, secondments, and exchange programs) would further enhance career development opportunities for the NRI workforce and foster a vibrant, interconnected ecosystem that drives innovative research.

In summary:

- Providing career security and progression.
- Providing opportunities for workforce to develop a unique identity in their area of RI expertise.
- Enhance mobility between NRI facilities.
- Improve ability to move between NRI sector, industry, academia (in all directions).

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 70

Thu, Nov 27, 2025, 01:36 PM Australian Eastern Daylight Time  
[ID: sbm3959444d1b0ff1507c636]

Title  
Prof

First Name  
Michelle

Last Name  
Arrow

Organisation  
Australian Historical Association

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Regardless of their specific technical expertise, Australia's NRI workforce must possess the following critical skills:

- Knowledge of and adherence to ethical research practices
  - o e.g., appropriate attribution of sources and ideas, consent, maintenance of confidentiality and data security
- Civic literacy
  - o possession of the knowledge and skills necessary to participate in and contribute to maintenance and strengthening of democratic society
- Digital literacy
  - o capacity to use digital technology to advance knowledge and awareness of issues of intellectual property, GenAI inaccuracy, disinformation, etc.
- Capacity to work collaboratively and collegially

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

The best approach to retain staff and build new capabilities to the current NRI workforce is to offer more secure career structures and ongoing, balanced teaching/research roles in universities. While there is a shortage of ongoing roles in universities for humanities disciplines more broadly, when jobs are being offered, they are often heavily weighted towards teaching, with a minimal research allocation or no allocation for research at all. Postdoctoral fellowships and fixed term contracts do not offer long-term security or the possibility of building lasting careers.

The AHA also recommends the creation of research roles in the National Cultural Institutions to expand capabilities in the NRI workforce, which would strengthen connections between university research and the GLAM sector.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 68

Thu, Nov 27, 2025, 10:55 AM Australian Eastern Daylight Time  
[ID: sbm3958b02fa8beb5440e5fd]

Title  
Dr

First Name  
Gemma

Last Name  
Killen

Organisation  
Working with Women Alliance

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Applying a gendered lens to critical skills within the NRI workforce is important for thinking about the necessary non-technical capabilities that foster inclusive and equitable environments. Beyond technical expertise, critical skills should include effective communication and collaboration to ensure diverse voices are heard, emotional intelligence and empathy to address gender biases and workplace challenges, and leadership that is committed to advancing gender equity. Additionally, showing flexibility to accommodate diverse needs is essential to support women and underrepresented groups. This approach is vital to overcoming systemic barriers that limit women's progression within the NRI workforce.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Evidence consistently shows that systemic barriers - including gender bias, unequal access to resources, inflexible working conditions, and underrepresentation of women in leadership roles - all constrain the ability of NRI organisations to attract and retain talented employees. To strengthen capability within Australia's NRI, equitable workforce participation must be embedded as a strategic priority within the 2026 National Research Infrastructure (NRI) Roadmap. This means recognising that gender balance and diversity throughout the academic and research pipeline are essential to sustaining a world-class research system.

Creating an inclusive culture that supports retention involves comprehensive structural reform. Key measures should include:

- Facilitating flexibility for all staff through remote and hybrid work options, part-time or job-share roles, and the destigmatisation of career breaks. Flexibility should be framed as an enabler of performance and participation, not a deviation from commitment.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- Embedding accountability for gender equity by setting, monitoring, and reporting measurable diversity targets at all organisational levels. Leaders must be held responsible for progress, with data-informed evaluation of what works.
- Fostering safe and respectful workplaces by addressing bullying, discrimination, and sexual harassment.
- Developing visible pathways to leadership through mentoring, sponsorship, and training that targets women and other underrepresented groups.
- Applying inclusive language in job advertisements, performance evaluation, and promotion criteria to remove gender bias and broaden the pool of applicants.
- Investing in professional learning and development by offering accessible, online and in-person opportunities for skill growth that fit around diverse career paths and caregiving responsibilities.

Organisations with balanced gender representation not only experience lower rates of sexual harassment but also achieve stronger organisational outcomes, including innovation and improved decision-making. Promoting gender equity is therefore both a social and economic imperative for the NRI.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 67

Wed, Nov 26, 2025, 04:23 PM Australian Eastern Daylight Time  
[ID: sbm3954b6d2071a5dbc40149]

Title  
Prof

First Name  
Kim

Last Name  
Wilkins

Organisation  
Faculty of HASS, University of Queensland

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Critical skills for all NRI workforce:

- **Comfort with complexity:** Ability to work with ambiguity and situations without clear right answers; understanding that research doesn't always fit into neat categories
- **Relational capability:** Building trust across diverse research communities; cultural competency, particularly for Indigenous research; navigating competing priorities
- **Translation skills:** Explaining technical capabilities to researchers and research needs to technical specialists; making infrastructure accessible and visible
- **Strategic thinking:** Understanding research landscape and emerging directions; anticipating future needs rather than only serving current demands
- **Collaborative facilitation:** Enabling others' success; working across institutional and disciplinary boundaries

Technical expertise can be hired or developed. These foundational skills enable technical expertise to be deployed effectively in service of research.

# 65

Wed, Nov 26, 2025, 10:13 AM Australian Eastern Daylight Time  
[ID: sbm395363c07d9c3527e7099]

Title  
Prof

First Name  
Kathryn

Last Name  
McGrath

Organisation  
The University of Technology Sydney

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The NRI workforce must possess strong interpersonal, cultural, and ethical capabilities that enable collaboration across sectors and respectful engagement with Aboriginal and Torres Strait Islander knowledge systems. These skills—ranging from community engagement and adaptability to sustained partnerships and commercial acumen—ensure research remains inclusive, ethically sound, and impactful for diverse communities and industries.

Community Engagement, Cultural Competency and Indigenous Recognition

The NRI workforce must excel in fostering relationships that span research organisations, industry, communities, and Indigenous groups. This requires the ability to build and broker relationships and skills to work across sectors, disciplines, communities, and with diverse cultural stakeholders. Effective collaboration is not limited to technical integration but extends to co-creation of knowledge, particularly in Indigenous-led research contexts. For example, integrating Indigenous knowledge systems into infrastructure planning demonstrates both respect and innovation, ensuring research outcomes are relevant and inclusive.

Sensitivity to cultural diversity is necessary for understanding and respectful engagement with Aboriginal and Torres Strait Islander knowledge systems, protocols, and ways of knowing, alongside recognition of Indigenous leadership and ongoing contributions to research infrastructure. This competency ensures that research practices align with Indigenous protocols and values, reinforcing trust and authenticity in partnerships. For instance, acknowledging Indigenous intellectual property rights and embedding cultural protocols in data governance frameworks reflects this commitment.

Recognition, Partnership and Communication

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

Long-term partnerships are critical for authentic collaboration, which require clear and accessible communication and adaptability. This allows staff to navigate complex environments and emerging needs, iterating methods to suit diverse contexts. For example, adjusting engagement strategies based on community feedback demonstrates responsiveness and continuous improvement.

Equally important is the commitment to ongoing monitoring and measurement of engagement, acknowledgement of co-created knowledge, and community benefit. This ensures that contributions are tracked, valued, and improved over time, reinforcing accountability and impact.

#### Ethical Practice and Risk Management

UTS staff highlighted the need for a commitment to ethical data sharing, research conduct, and policy engagement, coupled with strong risk management and consequence management skills. These capabilities enable the workforce to proactively identify and mitigate ethical, reputational, and operational risks. For example, transparent consent processes and culturally appropriate data stewardship are essential to uphold integrity and accountability.

#### Industry and Commercial Expertise

Practical experience and commercial acumen strengthen the relevance and sustainability of NRI services. Embedding industry and community knowledge ensures research remains connected to real-world needs, while commercial knowledge relevant to engaging users and compliance with agreements supports effective service delivery. Understanding intellectual property and managing procurement, installation and maintenance of infrastructure are also essential for operational excellence.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retaining staff and building new capabilities within the NRI workforce requires a coordinated approach that combines stable, well-supported roles, recognition of engagement as a core research output, and investment in systems that translate research into community benefit. This must be complemented by inclusive career pathways, structured professional development, competitive remuneration, and a national capability framework informed by international best practice to ensure long-term sustainability and impact.

#### Retaining Staff - Workforce Stability

Effective engagement between universities and communities requires sustained infrastructure that connects universities and communities, including community liaison roles, partnership frameworks, and long-term funding models that make collaboration viable and equitable. The NRI should explicitly recognise that the workforce itself – including those who broker relationships between research and community – is a key part of national capability. Stable, well-supported positions are essential to maintain long-term partnerships and deliver meaningful impact.

#### Retaining Staff - Professional Development and Career Progression

Professional development of the NRI workforce could be enhanced through provision of ongoing upskilling, industry placements, cross-sector secondments, and training in emerging technologies and cultural competency.

Furthermore, a coordinated national capability framework to help staff identify and uplift capabilities alongside, and in partnership, with researchers, would enable nation-wide NRI

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

workforce development and should be supported by research organisations hosting NRI workforce. The NRI should also consider establishing skills development centres similar to the UK's National Technician Development Centre.

Appropriate remuneration and clear career pathways are fundamental to retention. Competitive salaries must be paired with structured progression for technical staff, with specialist roles formally recognised. Career development should include creation of communities of technical expertise to foster knowledge sharing, promote recognition and provide mentorship.

Creating inclusive pathways is equally critical and the NRI should recruit and promote staff with practical industry experience, lived experience, and Indigenous knowledge, while enabling career progression that rewards engagement, expertise, and leadership. These strategies foster a diverse and future-ready workforce. Workforce capability planning should also identify current and future needs to ensure alignment with national priorities.

**New Capabilities - Valuing Engagement and Translational Systems**

The NRI can lead a cultural shift by recognising engagement, co-created knowledge, and community impact as legitimate and measurable research contributions. Investment should extend to systems that translate research into community benefit, such as communication tools, policy engagement mechanisms, and ethical data-sharing frameworks that support collaboration across sectors. These measures ensure that engagement is embedded as a core research outcome.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 58**

Mon, Nov 24, 2025, 11:40 PM Australian Eastern Daylight Time  
[ID: sbm394bf9f867cafe81b2390]

Title  
A/Prof

First Name  
Brailey

Last Name  
Sims

Organisation  
University of Newcastle

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Broad and balanced appreciation of all disciplines.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Empowerment through a sense of contribution and a level of autonomy in what they pursue and prioritise.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 57

Mon, Nov 24, 2025, 07:34 PM Australian Eastern Daylight Time  
[ID: sbm394b18f288ca48e699a7a]

Title  
Mr

First Name  
Steven

Last Name  
Tingay

Organisation  
Murchison Widefield Array

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

The success of NCRIS-funded MWA operations over the past 15 years has been achieved through the appointment of highly specialised subject matter experts, supported on a fractional basis by project officers and managers with strong capabilities in communications, project and financial management, operations, health and safety, and risk management.

Increasingly, adjacent skills such as database and systems administration, along with ICT security management, are critical to maintaining the integrity and security of the MWA and the broader data storage and computing research infrastructure on which its success depends.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Focusing on retaining the existing NCRIS workforce will enhance the quality and productivity of a funded facility, and should therefore take precedence over stretching limited funding to introduce new capabilities.

As Curtin University employees, MWA operations staff benefit from flexible working conditions, further learning opportunities, staff mobility and conference participation, as well as the opportunity to work in an international scientific environment. We have a demonstrated commitment to skills development and career progression through team restructuring, secondments, and financial support for further study. However, as an aging facility, MWA component obsolescence imposes a heavy maintenance and repair burden on these staff, impacting their opportunity to pursue these upskilling opportunities.

Prioritising NCRIS funding for appropriate infrastructure upgrades and best practice maintenance would maximise productivity returns and enhance the overall economic impact of the infrastructure (See: Ernst & Young, 2022, "The Economic and Social Impact of the Murchison Widefield Array". <https://mwatelescope.org/wp->

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

content/uploads/2022/08/Curtin\_University\_-  
\_The\_economic\_and\_social\_impact\_of\_the\_MWA.pdf).

The timing of the NCRIS budget cycle adds another challenge for staff retention, with government budgetary approvals often occurring only weeks or months before project funding expires. The uncertainty makes it impossible to offer contract security to our team, creating a significant staff retention challenge. We meet this challenge via prudent and highly conservative budgeting.

Overall, these pressures result in productivity loss in several dimensions, as excessive energy and time are invested in survival, and the lack of long-term planning means that funds are sometimes not expended to optimal effect. This is not a new problem (see: Tingay, 2014, “Planning for survival is not enough for success in Australian research”. <https://theconversation.com/planning-for-survival-is-not-enough-for-success-in-australian-research-27911>.)

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 41

Fri, Nov 21, 2025, 12:56 PM Australian Eastern Daylight Time  
[ID: sbm393a3917387157b62298e]

Title  
Prof

First Name  
Jeremy

Last Name  
Mould

Organisation  
Swinburne

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

A Figure of Merit for NCRIS providers is capital value of the research infrastructure divided by number of employees. 1900 employees is a lot. Standouts could be restructured if efficiency improvements are needed. If efficiencies are not required, then the NCRIS budget should be increased, because the cost of research infrastructure increases as research advances more than CPI. NCRIS providers need SOME employees who have research skills and background, otherwise direction will be lost.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Outsource more of the research to universities and industry.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 40

Fri, Nov 21, 2025, 12:40 PM Australian Eastern Daylight Time  
[ID: sbm393a2ac774ce84b63b415]

Title  
Dr

First Name  
Saraid

Last Name  
Billiards

Organisation  
Association of Australian Medical Research Institutes (AAMRI)

In what capacity are you responding?  
A representative of an organisation or group

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retention and capability growth require stable funding, structured career pathways and national coordination. Key actions include:

- Establish ongoing, fully funded positions and clear progression frameworks across NRI facilities.
- Invest in training, mentoring, and cross-sector secondments to build new expertise.
- Embed diversity, equity and inclusion programs and flexible work practices.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 36

Thu, Nov 20, 2025, 06:01 PM Australian Eastern Daylight Time  
[ID: sbm393629a66a1a0e94e8cf1]

Title  
Prof

First Name  
Brendan

Last Name  
Kennedy

Organisation  
The University of Sydney

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Provide clear career development and progression pathways / promotion streams that retain involvement with infrastructure development and implementation and avoid loss of technically skilled personnel to administration or management roles.

Provide secure operational funding for core staff, recognizing the need for continuity of expert staff funding.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 31

Wed, Nov 19, 2025, 03:32 PM Australian Eastern Daylight Time  
[ID: sbm392fcaee033095fdeb4a3]

Title  
Prof

First Name  
tony

Last Name  
bacic

Organisation  
La Trobe Institute for Sustainable Agriculture & Food, La Trobe University

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
highest possible appropriate technical skills; desire to provide quality service; ability to train the next generation of users; effective communications skill; skills in big data analytics

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
staff retention requires- security of tenure; a pathway for promotion; a pathway for recognition (eg academic specialist) within existing organisational structures; regular upskilling & training on state-of-the-art instrumentation and data analytics

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 21**

Mon, Nov 17, 2025, 03:40 PM Australian Eastern Daylight Time  
[ID: sbm3926359a769d1d3f73cb0]

Title  
Prof

First Name  
Matt

Last Name  
King

Organisation  
The Australian Centre for Excellence in Antarctic Science

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
project management, communication, AI technologies suited to their individual context

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 19

Sat, Nov 15, 2025, 07:37 PM Australian Eastern Daylight Time  
[ID: sbm391cc284bd9ddfa59de22]

Title  
Prof

First Name  
Cheryl

Last Name  
Praeger

Organisation  
University of Western Australia

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Strong critical and logical thinking and analytical skills.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 17**

Wed, Nov 12, 2025, 03:00 PM Australian Eastern Daylight Time  
[ID: sbm390c51113a3cd06ebd167]

Title  
Dr

First Name  
Giovanni

Last Name  
Di Virgilio

Organisation  
NSW DCCEEW

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Solid project management expertise. Familiarity with effective HPC use -- or at least the potential of such systems.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
As far as possible, role certainty e.g. 4+ year contracts or ongoing roles where possible.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 16

Tue, Nov 11, 2025, 09:26 PM Australian Eastern Daylight Time  
[ID: sbm39088c650c75a7ff001fa]

Title  
Prof

First Name  
Andy

Last Name  
Hogg

Organisation  
ACCESS-NRI

In what capacity are you responding?  
A representative of an organisation or group

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

ACCESS-NRI supports the need to attract and retain high-quality NRI staff. Our view is that this task is primarily the remit of the capability - that is, in the case of NCRIS, each Project must consider and invest in enhancing career progression and job satisfaction. But we agree that program-level initiatives - such as encouraging paper co-authorships, PhD student supervision, sabbaticals for RI staff - can also make a contribution. Here, the focus should be on sharing successful strategies and providing an encouraging environment to support exchanges, etc.

At ANU we have had some success in creating a Specialist Stream which recognises that RI staff are part-way between academic and professional staff streams. Promotion of Specialist Stream staff can occur (and now has occurred) based solely on the impact that the staff-member's work has on the research community; such progression was not possible under traditional professional staff streams at ANU. This progression has already improved satisfaction for ACCESS-NRI staff. We advocate that this initiative be considered by other universities involved in NCRIS Projects.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

**# 14**

Mon, Nov 10, 2025, 01:20 PM Australian Eastern Daylight Time  
[ID: sbm3901a8b390ab2e712dce3]

Title  
Prof

First Name  
Catherine

Last Name  
Greenhill

Organisation  
UNSW Sydney

In what capacity are you responding?  
An individual

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Sufficient funding and support, realistic workload expectations

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 9

Thu, Nov 6, 2025, 08:06 AM Australian Eastern Daylight Time  
[ID: sbm38ebf07751ca113f4acc5]

Title  
Mr

First Name  
Stuart

Last Name  
Milburn

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?  
Collaboration, ethical awareness, data security, and cultural sensitivity.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?  
Meaningful recognition and professional development.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 7

Wed, Nov 5, 2025, 10:18 AM Australian Eastern Daylight Time  
[ID: sbm38e742950dca162d5de4c]

Title  
Prof

First Name  
Sach

Last Name  
Jayasinghe

Organisation  
Academy for Collaborative Research Infrastructure

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

On the path to establishing ACRI, a survey of the Australian research infrastructure workforce was conducted (response of circa 110 in 2022/23). The results of the survey noted the following critical, non-technical skills (in order of priority based on responses): Project Management (capital project delivery, equipment procurement, delivering industry projects, effective use of contracts); Strategy and Planning (aligning to organisational strategy, external factors, capability roadmaps, budgets, developing business cases, KPIs); Finance & Management Accounting (pricing, cost-recovery, operating ratio, forecasting, budgeting, financial reporting); Effective and Efficient Operations (policy, systems and processes, information systems, delivery of training, operating models); Customer Service (client focus, managing expectations, survey tools and metrics, continuous improvement); Quality Control and Assurance (NATA, ISO, industry requirements and expectations); Snapshot of the Australian Innovation Eco-system (the tri-party system of academia, industry and government, funding system); Communication and Engagement (governance structures, end-user feedback, links to corporate functions (e.g. Facilities, Health and Safety)); Marketing and Business Development (competitive advantage, 4Ps, mix of fee-for-service versus projects); and Ethics and Integrity (animal ethics, human ethics, privacy, authorship and acknowledgement, research codes of conduct). With the recent developments, it would be prudent to also include AI and Machine Learning, which we suspect would be a high priority.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Aligned with well-established theories such as Maslow's Hierarchy of Needs, the retention of staff and attraction of new talent (capabilities) is addressed via:  
1) Providing secure employment through stable funding of salaries;

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

2) Within the Higher Education dichotomy of Professional (about job) and Academic (about person), ensure staff have a sense of belonging and identity. The broader implementation of the research infrastructure specialist (RIS) job family is required. In the long-term, the Enterprise Bargaining Agreements require review to formally embed enduring changes. ACRI would welcome the opportunity to work with the Advisory Group and the Department in how we can meaningfully engage the NTEU and the universities to work towards necessary EBA transformations. The cultural changes at the institutional-level and the sector more broadly is also required, as demonstrated internationally via initiatives such as the UK Technicians Commitment. Thus, ACRI calls on a similar initiative to be established in Australia; and

3) Akin to academic peers, the research infrastructure workforce require esteem as scientists and engineers who contribute the national research and innovation ecosystem. Too often they are in the background without due recognition and denied career progression (in most cases there is no avenue for career progression). ACRI looks forward to working with its members and stakeholders, in supporting and developing paths for enhancing the esteem of the research infrastructure workforce. However, it is incumbent on national policy makers to invest in opportunities for the research infrastructure workforce, such as access to bespoke fellowships and competitive grants (ARC, NHMRC to remove any barriers for RIS-led applications and address any bias within the peer review process).

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 6

Tue, Nov 4, 2025, 05:37 PM Australian Eastern Daylight Time  
[ID: sbm38e3aeb8c4ac65ee79940]

Title  
Prof

First Name  
Sach

Last Name  
Jayasinghe

Organisation  
QCIF Digital Research

In what capacity are you responding?  
A representative of an organisation or group

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Based on the past work of the QCIF CEO, a survey of the Australian research infrastructure workforce was conducted (response of circa 110 in 2022/23). The results of the survey noted the following critical, non-technical skills (in order of priority based on responses): Project Management (capital project delivery, equipment procurement, delivering industry projects, effective use of contracts); Strategy and Planning (aligning to organisational strategy, external factors, capability roadmaps, budgets, developing business cases, KPIs); Finance & Management Accounting (pricing, cost-recovery, operating ratio, forecasting, budgeting, financial reporting); Effective and Efficient Operations (policy, systems and processes, information systems, delivery of training, operating models); Customer Service (client focus, managing expectations, survey tools and metrics, continuous improvement); Quality Control and Assurance (NATA, ISO, industry requirements and expectations); Snapshot of the Australian Innovation Eco-system (the tri-party system of academia, industry and government, funding system); Communication and Engagement (governance structures, end-user feedback, links to corporate functions (e.g. Facilities, Health and Safety)); Marketing and Business Development (competitive advantage, 4Ps, mix of fee-for-service versus projects); and Ethics and Integrity (animal ethics, human ethics, privacy, authorship and acknowledgement, research codes of conduct). With the recent developments, it would be prudent to also include AI and Machine Learning, which we suspect would be a high priority, as evidenced by the high demand of the QCIF offerings to HDRs and other researchers.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

As previously presented by the CEO of QCIF across several forums: aligned with well-established theories such as Maslow's Hierarchy of Needs, the retention of staff and attraction of new talent (capabilities) is addressed via:

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

- 1) Providing secure employment through stable funding of salaries;
- 2) Within the Higher Education dichotomy of Professional (about job) and Academic (about person), ensure staff have a sense of belonging and identity. The broader implementation of the research infrastructure specialist (RIS) job family is required. In the long-term, the Enterprise Bargaining Agreements require review to formally embed enduring changes; and
- 3) Akin to academic peers, the research infrastructure workforce require esteem as scientists and engineers who contribute the national research and innovation ecosystem. Too often they are in the background without due recognition and denied career progression (in most cases there is no avenue for career progression). It is incumbent on national policy makers to invest in opportunities for the research infrastructure workforce, such as access to bespoke fellowships and competitive grants (ARC, NHMRC to remove any barriers for RIS-led applications and address any bias within the peer review process).

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 5

Mon, Nov 3, 2025, 04:04 PM Australian Eastern Daylight Time  
[ID: sbm38ddd61ca3f9b76568a90]

Title  
Prof

First Name  
Drew

Last Name  
Evans

Organisation  
Adelaide University

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

A general area of skills development would be in 'research translation and innovation'. The best NRI staff I have worked with are those that recognise their key role in the research translation pipeline and can connect lab-research with industry application. To date many NRI providers are good at dealing with one stakeholder at a time (researchers or industry) but rarely connecting them (researchers AND industry).

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Staff retention ultimately relates to career pathways and progression. Many of the high performing NRI staff have private sector experience and are highly employable in industry. The current employment mechanisms into the NRI facilities is limited in scope - often a technician type position aligned with a professional staff cohort. As a result there is no career progression and staff are forced to either concede or leave.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 4

Fri, Oct 31, 2025, 06:12 PM Australian Eastern Daylight Time  
[ID: sbm38cf347e64f81cebcf422]

Title  
Prof

First Name  
Victor

Last Name  
Calo

Organisation  
Curtin University

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Beyond technical expertise, the NRI workforce needs strong communication, collaboration, and strategic thinking skills to drive innovation across disciplines. Effective public engagement, project management, and systems thinking ensure efficient coordination of national facilities. Equally important are data stewardship, ethical awareness, and digital literacy to support responsible, open science. A culture of continuous learning and accountability is essential to keep pace with evolving technologies and research priorities.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Retaining and strengthening the NRI workforce will require stable employment, clear career pathways, and ongoing professional development. Industrial and academic exchanges and partnerships could expand skills and foster innovation, while a collaborative culture promotes mentoring and knowledge sharing.

**2026 National Research Infrastructure (NRI) Roadmap Issues Paper Consultation**  
Issues Paper Consultation Survey  
Department of Education

# 1

Mon, Oct 27, 2025, 11:39 AM Australian Eastern Daylight Time  
[ID: sbm38b933a67166ffe17f291]

Title  
A/Prof

First Name  
Nick

Last Name  
Thieberger

Organisation  
UNiversity of Melbourne

In what capacity are you responding?  
An individual

Q7. What are the critical skills that the NRI workforce should have regardless of their technical expertise?

Building trust with data creators to stem the current continual loss of primary data at the end of a funding cycle. Suitable repositories rely on the creators of primary data recognising the importance of archiving, resulting from proper data management through the life of their research.

Q8. What is the best approach to retain staff and add to new capabilities to the current NRI workforce?

Clearly it is critical to have funding that is either ongoing, or that has a longer lead time than most current grants, to allow staff to make career choices and to know they can stay and keep building up experience in a project.