Please note: the substantive content of the 2026 NRI Roadmap Survey begins at Question 20 (with prior questions dealing with administrative and other information).

As such all submissions that are published include the responses submitted from Question 20 onwards only.

Q20.

Part 2: Research themes

2.1 NRI comprises the assets, facilities and associated expertise to support leading-edge research and innovation in Australia and is accessible to publicly and privately funded users across Australia and internationally. We are seeking your input on possible directions for future national-level investment - i.e., where the requirements are of such scale and importance that national-level collaboration and coordination are essential.

The 2021 Roadmap used a challenge framework to support NRI planning and investment. With this in mind, consider likely future research trends in the next 5 - 10 years, and with respect to one or more of the 8 challenge areas identified in the 2021 Roadmap as listed below:

- describe emerging research directions and the associated critical research infrastructure requirements that are either not currently available at all, or not at sufficient scale and
- describe current national infrastructure requirements that you anticipate will no longer fit the definition of NRI in 5-10 years.

Do not limit your commentary to NCRIS funded capabilities.

Q21.

Resources Technology and Critical Minerals Processing

Future Research Needs & Strategic Directions - Strategies on mineral exploration and characterisation are essential for identifying appropriate resources to process. - Subsurface sampling, as a critical part of resource discovery, is supported by both high-cost commercial drilling infrastructure and access to innovative drilling technologies developed within initiatives (e.g., Deep Exploration Targeting and MinEx CRCs). The ongoing commercialisation of such resources poses a challenge on their accessibility, highlighting the need for NRI investment either in a standalone capacity for locally led projects, or as a contribution to participate in international scientific drilling collaborations. - A holistic approach to subsurface hydrogen storage requires integration of geophysical imaging, computational modelling, and efficient drilling methods. Key research infrastructure investments include downhole geophysical logging and seismic imaging capabilities to enhance subsurface characterisation. - Other research directions proposed: renewable energy integration, electricity supply and its efficiencies, the impacts of technologies related to energy, retrofitting societal infrastructure and systems, building in relation to energy, and social justice considerations across all these areas. Infrastructure Gaps & Investment Priorities - There is a need for greater investment in the nexus between rapid mineral characterization/robotics, chemical engineering, high-performance computing (including machine learning), and the associated training and technical support. The current capabilities are not at sufficient scale. - For rare earth and green steel industries, there is limited capacity for high-throughput automated sample analysis. This is a major bottleneck in many facilities for both researchers and industry. - High-resolution, low-voltage montage imaging is essential for studying microporosity in iron ores and the viability of the green steel manufacturing process. - Beyond physical infrastructure, there is an urgent need to build and sustain a skilled workforce to support high-end technical services (factors like career pathways, long-term contracts, and professional development of technical staff). Researchers would not acquire high-quality data without highly skilled technical staff enabling the facilities.

Q22.

Food and Beverage

Future Research Needs & Strategic Directions - Biodiversity, food systems and water supply: Australia’s primary industries face a range of interconnected challenges, including climate adaptation, biosecurity, biodiversity, transport, regulation and equitable water supply. Agriculture, forestry, fisheries and water resources are national priorities, and are therefore areas where ANU brings immense expertise across plant sciences, environmental sciences, policy, social sciences, law and Indigenous studies. - Research in food security, for example, developing heat-tolerant plants, higher-yield crops, and plants that grow with less environment impacts (i.e., require fewer pesticides, insecticides, and fertilisers). - Population growth and climate change are increasing the demand for potable water. For example, there are multiple ANU research groups exploring materials for clean water production via desalination using Metal-Organic Frameworks (MOFs) and harvesting water from the atmosphere with hydrogels. Infrastructure Gaps & Investment Priorities - The investment by Bioplatforms Australia in Plant SynBio, and its integration into a pipeline aligned with the Australia Plant Phenomics Network (APPN) facilities, presents a significant opportunity to advance research and infrastructure that supports the development and phenotyping of transgenic plants, including assessing the impact of gene modifications on plant performance under stress conditions. Additionally, it enables non-invasive characterisation of plant-based expression of recombinant proteins, which is useful for ingredients production at scale in the alternative protein sector. - Further investment is needed in integrated analysis systems for the rapid analysis of plant mutants. This includes bulk analysis with high sensitivity, high-resolution and accuracy imaging mass spectrometry, and improved sample preparation methodology. Multiple ANU research groups rely on a new-generation high-resolution scanning electron microscope with cryo capabilities for investigating beam-sensitive materials, highlighting a critical infrastructure need.

Q23.

Medical Products

Research directions include developments in synthetic biology for drug development, biosensors (e.g., breath-activated sensors for detecting cancer markers), and biosecurity (pathogen detection). Personalized medicine requires dedicated investments for high-throughput analysis instruments of drugs, drug-ligand binding, and wearable treatment devices. There is a need for correlative and multimodal microscopy solutions/pipelines for multiscale and integrated data from samples. Capabilities supported by BioPlatforms Australia such as the Biomolecular Resources Facility (BRF) that supports sequencing, as well as genotyping and bioinformatics for a broad range of genomic applications and research. In addition, ANU is increasingly investing in partnerships with ACT Health supporting service-as-infrastructure, for example Canberra Clinical Genomics and Canberra Clinical Phenomics Service. CCG improves diagnosis of patients by providing clinicians with access to state-of-the-art whole exome sequencing. CCPS provides advanced phenotyping of human blood samples, focusing on deep analysis of cytokines, interleukins and other biologic markers. MRFF has, over the past few years, increased a presence of supporting research infrastructure platforms, however the operational funding of these is not secure beyond the MRFF grant length. NRI has a role in working closely with MRFF platforms and its existing capabilities such as BPA to review opportunities for consolidation or new national platforms.

Q24.

Defence

Future Research Needs & Strategic Directions - Long term government research funding for universities to develop a pipeline of research and teaching areas that align with the Defence Innovation, Science and Technology Strategy. - Facilities to support direct classified briefings in secure environments with trusted university partners including funding to support secure network infrastructure and secure local data storage. There is a need for more than 1 SCIF facility on campus as well as upgrading existing facilities and networks in all DISP security domains to increase the overall university security levels from its current membership at entry and Level 1 to at least a Level 2. (Internal Note: Ability to access opportunities with Defence in research problems above Entry level DISP membership means that we are not invited to be part of the conversation to shape strategic directions or contribute to solutions). Infrastructure Gaps & Investment Priorities - Investment in the construction of physical and digital research infrastructure that enables collaboration between Defence and universities, including the pooling of resources to ease constraints. Such a consideration should consider the creation of DISP compliant facilities and infrastructure zones or hubs that is accessible to all Defence and university partners including Australia's VET sector as well as SME's and industry.

Q25.

Recycling and Clean Energy

Future Research Needs & Strategic Directions - Studies on bio-inspired materials, such as polymers and gel-based nanomaterials, is a current area of interest at ANU as they show promise in high-efficiency energy conversion and storage devices and other advanced energy applications. The inherent beam and air sensitivity of such materials make cryo scanning electron microscopy imaging crucial to their investigation. - Research that can accelerate transition to low-carbon technologies, particularly for heavy industry. ANU is one of many partners of the HILT CRC, that aims to de-risk decarbonisation for heavy industry. - Research on circular economies and the impacts of new recycling R&D. Infrastructure Gaps & Investment Priorities - Current infrastructure is not at adequate scale to support research in surface chemistry facilities and the development of better methods for carbon capture. A more coordinated effort is needed to expand access to these facilities. Technical staff development and training are also not at adequate scale. - Research in energy generation and storage including novel green energy technologies such as more efficient solar panels, batteries, and quantum technologies—relies on high-end analytical instrumentation for quality control and testing. Aberration-corrected electron microscopes are essential for these developments, yet access to these >$10 million instruments remains a challenge. A nationally coordinated access scheme with subsidized travel funding for researchers is needed to ensure timely access to existing facilities, rather than requiring every state or university to independently host such costly infrastructure. - Test-beds for low-TRL technologies for heavy industry require significant investment to breach the gap to translation. For example, hydrogen ironmaking, green hydrogen, thermal storage etc. - Capabilities to analyse beam-sensitive materials and difficult-to-detect light elements for projects in energy generation and storage.

Q26.

Space

National Space Qualification Network (NSQN) NSQN is a prime target to be recognised as a formal capability supported by NCRIS. NSQN has successfully integrated some of the nation's most advanced research facilities, including the National Space Test Facility (NSTF), the Heavy Ion Accelerator Facility (HIAF), and Australian Nuclear Science and Technology Organisation's (ANSTO) irradiation testing facilities, into a single, industry-facing framework. Since its establishment, NSQN has enabled a significant number of companies to conduct space qualification testing in Australia, reducing reliance on costly and time-consuming overseas facilities. The NSTF has supported a wide range of key industry players and enabled the qualification of 19 spacecrafts from Australia and New Zealand over the past four years. Similarly, HIAF has been instrumental in radiation effects testing, allowing universities, organisations, and various defence and aerospace companies to assess the resilience of materials and electronic components in space environments. ANSTO's facilities have further contributed by enabling high-precision Total Ionizing Dose (TID) and Single Event Effects (SEE) testing, aligning Australian space payloads with international standards. Lack of accessible funding limits Australian researchers' ability to fully participate in international space collaborations (even when holding key roles as Science Chief Investigators) on NASA, ESA, and JAXA missions. The funding challenges result in significant missed opportunities for Australia. Other areas for development: Instrument development for space would support Australian competitiveness across key technology areas: - high tech containment facilities (for pathogens), - development of tools to extreme environments (like deep ocean and polar regions), - algorithms for unravelling complex data (high performance computing), - cutting edge geochemical/astromaterials facilities, etcFacilities such as TERN and APPN could be leveraged to develop Earth observation sensors capable of monitoring/quantifying chemistries and metabolic processes in plant growing in natural ecosystems and food production systems, with data generated made available to improve crop and climate models. - Analysis of beam-sensitive materials and difficult-to-detect light elements for spacecraft requires high-end transmission and scanning electron microscopy.

Q27.

Environment and Climate

Future Research Needs & Strategic Directions - Climate change, energy transition and the increasing risk of disasters affect every aspect of our lives. At ANU, this broad focus area joins the science, engineering, social science, law and policy of mitigation (transition to zero-carbon energy systems, reducing emissions, carbon removal), adaptation (resilience, preparation, bushfires), and enhanced climate and environmental monitoring and prediction (including modelling). Climate impacts and mitigation related to energy and buildings remain key research priorities. - Social justice, fairness, and equity still an overlay of Humanities and Social Sciences driven by data capture; for example, when we research Australia's water resources such as rivers and dams, this is not just a hydrology question but also a question of policy, justice and social science. - Plant adaptation for climate change is a major area of research for Australia and ANU. Infrastructure Gaps & Investment Priorities - There is a critical need for massive investment in computing infrastructure at all scales, spanning from not only Tier 1 HPC beyond the current capability of NCI (which is already saturated) but also small, fast-turnaround computing facilities. Expanding access to high-performance computing at all levels, all the way down to classrooms, is essential for climate research and mitigation efforts. - Continued participation in national scale (e.g. TERN, IMOS) and international-scale endeavours such as the International Ocean Discovery Program (IODP) and the International Continental Scientific Drilling Program (ICDP) support data gathering that underpins climate models and observations. Modelling infrastructure like ACCESS-NRI enables predictions of future risk. - Environmental monitoring infrastructure can be better connected to other non-infrastructure initiatives, such as farm-facing agritech.

Q28.

Frontier Technologies and Modern Manufacturing

Future Research Needs & Strategic Directions Analysis of beam-sensitive materials and difficult-to-detect light elements for projects in: • advanced alloys • semi- and super-conductors • quantum and optical devices • flexible electronics • smart materials Rapid advancements in AI, machine learning, engineering biology, biomedicine and quantum technologies create enormous opportunities for humanity to have better productivity and quality of life. The same technologies also raise critical questions about trust and bias in data and decision-making, governance over technology change, the ethics of personalisation, and the implications for a modern workforce. As Australia invests increasingly in new and disruptive technologies, we cannot lose sight of the importance of measuring and understanding the broader impacts to job markets, livelihoods, health, wellbeing and culture. Humanities and Social Sciences remains a critical need for the country, and needs to be backed by accessible data sets, better analytical tools and increasing data linkage.

Q29.

2.2 The 2024 statement of National Science and Research Priorities (NSRPs) includes outcomes linked to each priority to assist in identifying critical research needed in the next 5 to 10 years.
Consider the priority statements and, with respect to one or more of the 5 priority areas as listed below:

- describe emerging research directions and the associated critical research infrastructure requirements that are either not currently available at all, or
- not at sufficient scale and describe current national infrastructure requirements that you anticipate will no longer fit the definition of NRI in 5-10 years.

Do not limit your commentary to NCRIS funded capabilities, and where relevant, refer to the underpinning outcomes and research identified in the NSRPs document.

Q30.

Transitioning to a net zero future

Future Research Needs & Strategic Directions - Climate change, energy transition and the increasing risk of disasters affect every aspect of our lives. At ANU, this broad focus area joins the science, engineering, social science, law and policy of mitigation (transition to zero-carbon energy systems, reducing emissions, carbon removal), adaptation (resilience, preparation, bushfires), and enhanced climate and environmental monitoring and prediction (including modelling). - There is an urgent need to invest in and develop technologies that will enable standardised, scalable and verified/validated soil carbon estimation, and technologies that will reduce reliance on inorganic fertilisers into agricultural systems (thereby reducing emissions associated with Nitrogen-based fertilisers and denitrification of inorganic Nitrogen) Infrastructure Gaps & Investment Priorities - The development of novel green energy technologies (e.g. more efficient solar panels, batteries, quantum technologies) require high-end analytical instrumentation for quality control and testing, Aberration-corrected electron microscopes are critical instruments for these developments with extremely high costs (over $10 million each). A national access scheme with travel funding is needed. This will better support timely access for researchers across Australia in a more efficient mechanism than requiring every state or university to host such expensive equipment. - Energy and building data are limited at the broad Australian scale. There are not great data sets that support us to get a clear picture on who, for example, is in good housing versus poor, who is near renewable energy opportunities and who is not, what are the sorts of energy sources people use in certain locations. The ABS currently provides very limited energy and building data, while energy consumer data is collected and held by certain organisations only without broad access. - Current surface chemistry infrastructure and facilities to test and develop better methods for carbon capture are not at sufficient scale.

Q31.

Supporting healthy and thriving communities

Future Research Needs & Strategic Directions - The impact area of health and wellbeing encompasses our efforts in First Nations Health, where we aim to improve health outcomes for First Nations People at clinical, systemic and policy levels. It also involves addressing mental health and wellbeing challenges exacerbated in the current post-COVID geopolitical era. We will play a pivotal role in precision medicine, utilising advanced diagnostics, data-powered prognostics, and new therapeutics to prioritise early diagnosis and disease prevention. We investigate the social, economic, human and ethical implications of health systems, interventions and technologies. - Understanding the complexity and diversity of human experience, and the myriad ways people past and present have interactively tried to make sense of the world and their place within it, is essential for building the future. ANU contributes to a critical understanding of Australia's evolving cultural life, engaging with cultural institutions and creative industries, First Nations Communities and diverse civic organisations to create, curate, evaluate and understand our shared and emerging cultural inheritance. Infrastructure Gaps & Investment Priorities There is a lack of interdisciplinary hubs, which integrates multiple disciplines across health, geography/urban design, architecture, history, economics, insurance, and earth sciences, to support this area of research, responding effectively to major disasters such as floods, cyclones, chemical spills, and fires. This presents investment opportunities in research infrastructure that facilitates cross-disciplinary collaboration in disaster resilience and recovery planning. Investments are required in infrastructure that supports creating a step change in productivity growth of broad-acre crops, and which supports improvements in the nutritional quality of crops. Current there are limited data sources on infrastructural advantages and disparities across Australia. Topics generally include but are not limited to: - Access to key technologies and renewable energy options in different regions - Availability of healthy, energy-efficient housing - Access to open space and environmental quality - Regional impacts of pollution - Other social care and social justice issues. - Developing comprehensive and accessible databases on these issues would be useful (i.e. supporting digital humanities and social sciences through linked and accessible data with fit-for-purpose analytical tools. This includes building a cohort of research software engineers).

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Future Research Needs & Strategic Directions There is a key challenge identified in properly framing and implementing two-way learning between universities and Indigenous communities. Underpinned by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP): selfdetermination, acknowledgement, respect (yindyamarra), and honouring and protecting First Nations Peoples' sovereign ownership of Country, Culture and Heritage. ANU as a world leader in the management and repatriation of First Nation Ancestors, objects and cultural material. There is a significant opportunity to look across all of Australia (universities and other national collecting institutions/agencies) for a joined-up approach to Collections and the obligations of custodianship in institutions. Collections was specifically called out in the 2021 Roadmap but we have not seen sufficient progress to date. There are multiple opportunities across the NRI landscape for approaches to better tie to Aboriginal and Torres Strait Islander knowledge systems, and for capacity building in communities about information related to resource management, environmental monitoring, climate history (e.g. subsurface sampling), natural hazards, resources and archaeology across the Australian landmass and out onto the continental shelf. Australian membership in international research infrastructure initiatives also generates opportunities to extol the benefits of inclusive science that recognises and learns from Aboriginal and Torres Strait Islander knowledge systems. Experience from recent and planned scientific drilling projects in the Pacific indicates that Australia has a leading role in global efforts to acknowledge and recognise the benefits that stem from First Nations knowledge systems. This is perhaps an unrecognised leadership opportunity stemming from NRI that facilitates Australian membership in international research infrastructure initiatives.

Q33.

Protecting and restoring Australia's environment

Future Research Needs & Strategic Directions Continued participation in national scale (e.g. TERN, IMOS) and international-scale endeavours such as the International Ocean Discovery Program (IODP) and the International Continental Scientific Drilling Program (ICDP) support data gathering that underpins climate models and observations. Modelling infrastructure like ACCESS-NRI enables predictions of future risk. ANU is engaged with TERN through the Australian Mountain Research Facility, and has a particular interest in ensuring we can maintain longitudinal studies that grow understanding of the changes over time to different biomes within Australia. Infrastructure Gaps & Investment Priorities There is a critical need for massive investment in computing infrastructure at all scales, spanning from not only Tier 1 HPC beyond the current capability of NCI (which is already saturated) but also small, fast-turnaround computing facilities. Expanding access to high-performance computing at all levels, all the way down to classrooms, is essential for climate research and mitigation efforts. Environmental monitoring infrastructure can be better connected to other non-infrastructure initiatives, such as farm-facing agritech.

Q34.

Building a secure and resilient nation

Future Research Needs & Strategic Directions As a powerhouse of social reconstruction, the ANU has a history of shaping institution-building, enhancing governance, and championing democratic renewal in Australia and the region. As we navigate an era of declining trust and increasing concern about our democratic future, the ANU is working in partnership with governments, public services, civil society organisations, and the private sector to build institutions that centre integrity, value inclusion, and which are trust-enhancing. Ensuring we have the capabilities needed to jointly deal with the increasingly complex challenges that confront us, is central to the vision of the ANU. Economic progress and policy innovation – ANU drives economic progress through pioneering theoretical and applied research and innovation. With a rich legacy in shaping public policy, we leverage transformative economic and social research to influence government policy across key impact areas crucial for the future prosperity of Australia and our region. Our research also assists to enhance the efficiency and performance of the public, private and for-purpose sectors. The Future of Space CRC, led by ANU will further extend NSQN's impact by driving research and development in key areas such as advanced space manufacturing, sustainability, and semiconductor testing. These all require dedicated research infrastructure and coordinated framework to access these facilities. With growing interest in in-space manufacturing, lunar exploration, and planetary resource utilization, Australia lacks dedicated research infrastructure for microgravity research, in-situ resource utilization (ISRU) simulation, atmospheric re-entry testing, and space-based manufacturing The Future of Space CRC is also focusing on R&D related to in-space servicing and autonomous mission support, which will require specialized infrastructure to simulate the unique challenges of deep-space environments. Australia needs a forward-thinking approach to expanding space research infrastructure to stay at the forefront of global space economy. A secure and resilient nation needs to be adept at recognising and mitigating natural hazards. For Australia, some of these hazards lie under the sea, e.g. submarine landslides, possibly earthquake triggered, and tsunami triggered by distant earthquakes.

Q35.

2.3 The case for a new NRI capability, or enhancements to existing capabilities, typically emerges through advocacy from research communities clustering around rigorously identified needs and goals. Such a concept could respond to a requirement for novel or expanded capacity within a domain, or across domains, and must be such that it could only be made available with national-level investment.
If you have identified such a requirement, briefly describe the need, the proposed infrastructure capability, the medium-term goals, impacted research communities, and the timeframe over which you advocate its establishment. Your response can include links to relevant existing reports.

1. Tier 1 compute capability: The widespread movement in the current NDRI Strategy to include Tier 2 compute and data systems within the NCRIS framework, seeing Tier 2 and 3 as a 'gap', needs to be refuted. The most efficient way to achieve the goal for an integrated system of all levels of computing is to provide Tier 2 and 3 systems is within an integrated Tier 1 HPCD capability. 2. Space testing As the Australian space industry grows, the demand for space-testing services such as those for electronic components, novel radiation shielding materials and radiation-resistant plants increases correspondingly. Australian infrastructure is not meeting demand and international facilities have multi-year wait times and prohibitively high user charges. We have a particular gap in our translation research infrastructure, namely the ability to produce heavy ion beams with energies of 100 MeV/nucleon or greater (10-20 times higher than currently available). Establishing a nationally coordinated framework for space testing infrastructure leveraging the National Space Qualification Network is a sensible first step in developing an effective framework 3. Developing a research vessel fleet Access to a well-equipped, modern and capable research vessel fleet is essential for collecting the seabed data and samples that guide efforts to pin down the ideal locations at which to target acquisition of the subseafloor samples that allow thousand- or million-year time-series to be established. A research vessel fleet should include a Marine National Facility that maximises at-sea time for science and training, an accessible and modernised coastal research vessel fleet, and an Antarctic ice breaker – or ideally ice breakers. 4. Developing CoastRI There is considerable benefit in a combined NRI focus on the coastal zone. Considerable momentum has built in this space in recent years through planning for the CoastRI initiative. Future NRI would be wise to build on this start to establish CoastRI as a long-term initiative that will help build community resilience, protect and restore ecosystems, and provide a platform for elevating Aboriginal and Torres Strait Islander knowledge systems. 5. Collections Discussions around a consolidated approach to collections, called out in the 2021 Roadmap, has stalled (from the University's perspective). Partly this may be to do with different notions of what types of collections are in scope. There are three critical pieces that each need their own response. (a) Biobanks (c) Indigenous Ancestors and Cultural Materials requires a national consolidated approach (d) ALA and related natural collections 6. Strengthening biological models and biobanks as national research infrastructure Australia requires concerted national leadership for the strategic development and delivery of biological models as research infrastructure. The sector is more fragile than in the past roadmap. There is a significant national opportunity of supporting non-animal modelling infrastructure (requires a concerted national infrastructure response. 7. Sustaining and uplifting investment in Advanced Microscopy Cutting-edge microscopy and microanalytical tools underpin broad science disciplines, from medical, soft matter, plant, materials, agricultural and geological sciences, to address Australia’s future research and industry needs. A significant uplift in advanced microscopy is urgently required across the country. The continuation of long-term investment (10+ years) without interruption or stagnation in national research infrastructure, such as Microscopy Australia, is critical to ensure continuous high-level support for all Australian researchers at all career stages. 8. Uplifting digital Humanities and Social Sciences sapabilities Targeted investments in digital infrastructure is essential to support high-impact HASS research. We suggest the following opportunities: - Development of a HASS research software engineering (RSE) workforce. - Funding for the development of local and national HASS research infrastructure. - Guidelines for peer review and quality assessment of digital research outputs, from grant bid to end of life. - Investment in digital methods training for HASS researchers. - Recommended technical patterns for the design, development, and maintenance of HASS research outputs. - Publication of a high-level national architecture and roadmap for HASS-specific research infrastructure. - Better alignment with GLAM sector technical investments and planning. - National access to GPU for open source model inferencing. - National access to compute for cultural heritage digitisation, and development of vector stores and digital twins. - Greater emphasis on cross-sectoral investment in Heritage Science - Greater emphasis on cross-sectoral investment in the creative industries. 9. Stable and Long-Term Funding for NCRIS The 5-year funding periods of the current NCRIS decadal funding horizon lead to inevitable 'funding cliffs' that have stunted service planning and capability investments. Equivalent long term funding assurance as provided to entities such as the MRFF, ARC and NHMRC will properly enable NCRIS to get more value from investment in research across universities, industry and government; harness and grow business investment in R&D; and leverage our scientific strengths to help address national priorities and foster new industries. 10. Workforce Development A diverse, knowledgeable, and flexible workforce will be the main driver of success for ANU research infrastructure. As a sector we must do more to attract, retain and give job certainty to our expert workforce that underpins research. Universities are to different extents offering novel pathways such as specialist classification streams to address this, but more can be achieved in a joined-up national way.

Q36.

Part 3: Industry perspectives

This section is seeking input specifically from industry-based respondents. Other respondents can skip this section.

Recommendation 6 of the 2021 Roadmap related to improvements in industry engagement with NRI. To complement work on this topic that has occurred since then, we are seeking additional advice on NRI requirements as perceived by current or potential industry-based users.

Q37.

3.1 Have you (or your organisation) interreacted with or used Australia's NRI?

- (●) Yes
- ( ) No

Q38.

3.2 If so, please briefly outline the NRI capabilities you (or your organisation) have interacted with or used. Do not limit your response to NCRIS capabilities.

As a major research university we are connected to almost all NCRIS; plus other national and international facilities. ANU is home to a large range of research infrastructure assets that are crucial to the research environment of Australia.

Q39.

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

- [x] For expertise or advice
- [x] Access to research resources or products
- [x] Access to equipment for research
- [x] Access to equipment for operational reasons
- [x] Help in translating research
- [x] Access to data
- [x] Support for clinical trials
- [x] Other (please specify) Host NRIs at ANU

Q40.

3.4 If you answered no, please indicate your (one or more) primary reasons:

This question was not displayed to the respondent.

Q41.

Part 4: Other comments

4.1 Please elaborate on any of your above responses or add any other comments relevant to the development of the 2026 Roadmap. Your response can include reference or links to existing reports that you recommend be considered during the 2026 Roadmap development process.

We welcome the opportunity to provide this input. Although our answers are not comprehensive across the breadth and depth of ANU's engagement with National Research Infrastructure, we hope that what comes across is a deep and ongoing interest in having a roadmap that continues to grow support for research and development in Australia. Having sovereign capabilities across a number of key fields is more critical than ever, but comes at a time when many Universities including ANU are in poor financial positions, making investment in national-scale infrastructure difficult by ourselves. Coordinated approaches are critical. We value NCRIS and the power of national and international networks for achieving access for our researchers that would not be possible for a single institution or country. We hope that the roadmap will advocate for different structural models of support that can give longer-term surety of funding to lead agents whilst not compromising on the necessary oversight role of Government. As always, please reach out to us for further information or to help co-design the future of NRI.