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

The critical minerals sector requires significant AI and machine learning capabilities to accelerate mineral exploration, optimize processing, and enhance resource recovery. Despite the NDRI strategy focussing heavily on AI and associated compute, we would like to re-emphasise that current national GPU and sovereign AI capability is catastrophically far behind. Researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. Key requirements for this sector include: Advanced AI computing capacity to process and analyze large-scale geological datasets, including: -foundational models for earth observation -processing of hyperspectral imaging -real-time sensor data analysis -heterogenous model integration of different data types, e.g. geospatial, visual, magnetic, gravimetric, sensor, chemical assay -automated drill core analysis -mineral deposit prediction models -process optimization for mineral extraction A national AI data labelling platform would be particularly valuable for: -annotating geological and geospatial imagery -classifying mineral samples -labelling drill core data -creating training datasets for automated mineral identification -enabling and incentivising metadata creation for FAIR data sharing and re-use Emerging technologies in AI and machine learning require flexible, diverse, and scalable computing infrastructure at a massive scale and these needs are not met by traditional Tier-1 HPCs. Current systems rely on asynchronous batch-job submissions, unsuited to AI's iterative workflows that demand real-time feedback and GPU-accelerated computing. To fill this gap, well-resourced universities and research institutions are investing in private GPU clusters, but these investments are much smaller than global leaders in AI. This will prevent us from fully capitalising on the many freely available models developed overseas at tremendous expense. Training and fine-tuning AI models for local contexts also require hardware far beyond what is currently available nationally. Accelerating research demands a novel but complementary service model compared to the well-established Tier-1 HPC model. We need agile, on-demand access to specialised hardware that enables interactive and flexible multi-tenancy use, serverless on-demand access to scarce computing resources, and trusted research environments for AI acceleration of research using secure data. Investment in a sustainable talent pipeline and centralised support infrastructure is essential to building, retaining, and growing the necessary skills for long-term impact and securing sovereign capability.

Q22.

Food and Beverage

The Australian agricultural sector faces unprecedented challenges in achieving its $100B export target by 2030 while maintaining food security and adapting to climate change. Current NRI investment in agriculture is insufficient relative to its economic and strategic importance. There is a clear gap in NRI investment in agriculture relevant to its importance to the economy ($100B by 2030 in exports), food security and national sovereignty. Due to funding constraints APPN has until recently only had a limited national scope, livestock production is non-existent and TERN (due to funding constraints) largely focuses on natural and low-intensity agricultural landscapes. More investment is needed to address these shortcomings with an emphasis on enduring infrastructure and monitoring in agricultural landscapes at commercially relevant scales. Enduring is not possible within the current 3-5 year window of RDC funding. A national network of instrumented sites could be established off the numerous university and state agency run farms and research stations. As a new node of the Australian Plant Phenomics Network (APPN), we identify critical infrastructure needs: -enhanced AI computing capacity for agricultural applications: -high-throughput phenotyping analysis -crop yield prediction -disease detection and monitoring -precision agriculture optimization -climate adaptation modelling A national AI data labelling platform, specifically valuable for: -plant phenotype annotation -crop disease identification -field imagery classification -agricultural sensor data integration Expanded APPN infrastructure requirements: -integration of AI capabilities with field facilities -integration of livestock production facilities -enhanced coverage of intensive agricultural landscapes Current National AI and GPU computing infrastructure cannot support these agricultural AI applications at scale. Finally, with linkages to omics-disciplines served by BioPlatforms Australia/BioCommons Australia there is great potential to link plant phenotyping to omics for plant breeding new varieties for increased production and resilience to climate extremes.

Q23.

Medical Products

The NDRI strategy focused heavily on AI and associated compute but we would like to re-emphasise that the current investment in GPU and sovereign AI capability is catastrophically far behind - researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. There are a number of opportunities for cross-cutting AI platforms that are relevant for many research themes, one example being a national AI data labelling platform enabling researchers to efficiently and securely label any type of data, assisted by AI, will augment and empower researchers, as well as enabling and incentivising metadata creation for FAIR data sharing and re-use, as the first researcher to benefit will be the researchers creating the data themselves. This platform could efficiently assist with different modalities such as text, images, video and 3D spatial, across many different domains beginning with identified priority areas. This will leverage AI models to pre-label data, make the best use of the researcher's time by showing you the most valuable datum to annotate, and actively improve the model while you're labelling. Centralisation can enable fine-tuning these models at scale on collected data (where appropriate), helping the research community in a positive feedback loop. Of direct relevance to this theme is applications of AI to protein structure as exemplified by AlphaFold which has been deployed for the Australian research community by BioPlatforms Australia through BioCommons Australia. This has potential for a transformational impact on fields of drug discovery, precision medicine and vaccine development. These and other omics-related analytics need to be deployed on code-free AI-enabled infrastructure to make this accessible for all researchers in the life and medical sciences. Emerging technologies in AI and machine learning require flexible, diverse, and scalable computing infrastructure at a massive scale and these needs are not met by traditional Tier-1 HPCs. Current systems rely on asynchronous batch-job submissions, unsuited to AI's iterative workflows that demand real-time feedback and GPU-accelerated computing. To fill this gap, well-resourced universities and research institutions are investing in private GPU clusters, but these investments are much smaller than global leaders in AI. This will prevent us from fully capitalising on the many freely available models developed overseas at tremendous expense. Training and fine-tuning AI models for local contexts also require hardware far beyond what is currently available nationally. Accelerating research demands a novel but complementary service model compared to the well-established Tier-1 HPC model. We need agile, on-demand access to specialised hardware that enables interactive and flexible multi-tenancy use, serverless on-demand access to scarce computing resources.

Q24.

Defence

The NDRI strategy focused heavily on AI and associated compute but we would like to re-emphasise that the current investment in GPU and sovereign AI capability is catastrophically far behind - researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. There are a number of opportunities for cross-cutting AI platforms that are relevant for many research themes, one example being a national AI data labelling platform enabling researchers to efficiently and securely label any type of data, assisted by AI, will augment and empower researchers, as well as enabling and incentivising metadata creation for FAIR data sharing and re-use, as the first researcher to benefit will be the researchers creating the data themselves. This platform could efficiently assist with different modalities such as text, images, video and 3D spatial, across many different domains beginning with identified priority areas. This will leverage AI models to pre-label data, make the best use of the researcher's time by showing you the most valuable datum to annotate, and actively improve the model while you're labelling. Centralisation can enable fine-tuning these models at scale on collected data (where appropriate), helping the research community in a positive feedback loop. Emerging technologies in AI and machine learning require flexible, diverse, and scalable computing infrastructure at a massive scale and these needs are not met by traditional Tier-1 HPCs. Current systems rely on asynchronous batch-job submissions, unsuited to AI's iterative workflows that demand real-time feedback and GPU-accelerated computing. To fill this gap, well-resourced universities and research institutions are investing in private GPU clusters, but these investments are much smaller than global leaders in AI. This will prevent us from fully capitalising on the many freely available models developed overseas at tremendous expense. Training and fine-tuning AI models for local contexts also require hardware far beyond what is currently available nationally. Accelerating research demands a novel but complementary service model compared to the well-established Tier-1 HPC model. We need agile, on-demand access to specialised hardware that enables interactive and flexible multi-tenancy use, serverless on-demand access to scarce computing resources.

Q25.

Recycling and Clean Energy

The NDRI strategy focused heavily on AI and associated compute but we would like to re-emphasise that the current investment in GPU and sovereign AI capability is catastrophically far behind - researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. There are a number of opportunities for cross-cutting AI platforms that are relevant for many research themes, one example being a national AI data labelling platform enabling researchers to efficiently and securely label any type of data, assisted by AI, will augment and empower researchers, as well as enabling and incentivising metadata creation for FAIR data sharing and re-use, as the first researcher to benefit will be the researchers creating the data themselves. This platform could efficiently assist with different modalities such as text, images, video and 3D spatial, across many different domains beginning with identified priority areas. This will leverage AI models to pre-label data, make the best use of the researcher's time by showing you the most valuable datum to annotate, and actively improve the model while you're labelling. Centralisation can enable fine-tuning these models at scale on collected data (where appropriate), helping the research community in a positive feedback loop. Emerging technologies in AI and machine learning require flexible, diverse, and scalable computing infrastructure at a massive scale and these needs are not met by traditional Tier-1 HPCs. Current systems rely on asynchronous batch-job submissions, unsuited to AI's iterative workflows that demand real-time feedback and GPU-accelerated computing. To fill this gap, well-resourced universities and research institutions are investing in private GPU clusters, but these investments are much smaller than global leaders in AI. This will prevent us from fully capitalising on the many freely available models developed overseas at tremendous expense. Training and fine-tuning AI models for local contexts also require hardware far beyond what is currently available nationally. Accelerating research demands a novel but complementary service model compared to the well-established Tier-1 HPC model. We need agile, on-demand access to specialised hardware that enables interactive and flexible multi-tenancy use, serverless on-demand access to scarce computing resources.

Q26.

Space

The NDRI strategy focused heavily on AI and associated compute but we would like to re-emphasise that the current investment in GPU and sovereign AI capability is catastrophically far behind - researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. There are a number of opportunities for cross-cutting AI platforms that are relevant for many research themes, one example being a national AI data labelling platform enabling researchers to efficiently and securely label any type of data, assisted by AI, will augment and empower researchers, as well as enabling and incentivising metadata creation for FAIR data sharing and re-use, as the first researcher to benefit will be the researchers creating the data themselves. This platform could efficiently assist with different modalities such as text, images, video and 3D spatial, across many different domains beginning with identified priority areas. This will leverage AI models to pre-label data, make the best use of the researcher's time by showing you the most valuable datum to annotate, and actively improve the model while you're labelling. Centralisation can enable fine-tuning these models at scale on collected data (where appropriate), helping the research community in a positive feedback loop. Emerging technologies in AI and machine learning require flexible, diverse, and scalable computing infrastructure at a massive scale and these needs are not met by traditional Tier-1 HPCs. Current systems rely on asynchronous batch-job submissions, unsuited to AI's iterative workflows that demand real-time feedback and GPU-accelerated computing. To fill this gap, well-resourced universities and research institutions are investing in private GPU clusters, but these investments are much smaller than global leaders in AI. This will prevent us from fully capitalising on the many freely available models developed overseas at tremendous expense. Training and fine-tuning AI models for local contexts also require hardware far beyond what is currently available nationally. Accelerating research demands a novel but complementary service model compared to the well-established Tier-1 HPC model. We need agile, on-demand access to specialised hardware that enables interactive and flexible multi-tenancy use, serverless on-demand access to scarce computing resources.

Q27.

Environment and Climate

The NDRI strategy focused heavily on AI and associated compute but we would like to re-emphasise that the current investment in GPU and sovereign AI capability is catastrophically far behind - researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. There are a number of opportunities for cross-cutting AI platforms that are relevant for many research themes, one example being a national AI data labelling platform enabling researchers to efficiently and securely label any type of data, assisted by AI, will augment and empower researchers, as well as enabling and incentivising metadata creation for FAIR data sharing and re-use, as the first researcher to benefit will be the researchers creating the data themselves. This platform could efficiently assist with different modalities such as text, images, video and 3D spatial, across many different domains beginning with identified priority areas. This will leverage AI models to pre-label data, make the best use of the researcher's time by showing you the most valuable datum to annotate, and actively improve the model while you're labelling. Centralisation can enable fine-tuning these models at scale on collected data (where appropriate), helping the research community in a positive feedback loop. There is also a need for specific AI-platforms relevant to specific research themes, an example is foundational models for earth observation which may be more focused to a smaller subset of themes (Resources Technology & Critical Minerals; Food & Beverage; Environment and Climate). Emerging technologies in AI and machine learning require flexible, diverse, and scalable computing infrastructure at a massive scale and these needs are not met by traditional Tier-1 HPCs. Current systems rely on asynchronous batch-job submissions, unsuited to AI's iterative workflows that demand real-time feedback and GPU-accelerated computing. There is limited NRI investment in Australia's most precious resource, freshwater, especially its quality in terms of chemical and biological properties. Australia's water quality data is sparse in terms of geographic and temporal spread, and distributed across may databases with different accessibilities. Investment is needed in data curation and a national monitoring program. In terms of climate there has been excellent work so far in NRI (e.g. TERN, ACCESS) but there has been little focus on cropping landscapes which only cover 6% of our landscape but are where most change can occur given that 50-70% of greenhouse emissions for a grain grower are from N fertilisers and the growing interest in nature positive agriculture. We need monitoring and modelling of these landscapes in terms of their biodiversity and greenhouse gas emissions.

Q28.

Frontier Technologies and Modern Manufacturing

The NDRI strategy focused heavily on AI and associated compute but we would like to re-emphasise that the current investment in GPU and sovereign AI capability is catastrophically far behind - researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. There are a number of opportunities for cross-cutting AI platforms that are relevant for many research themes, one example being a national AI data labelling platform enabling researchers to efficiently and securely label any type of data, assisted by AI, will augment and empower researchers, as well as enabling and incentivising metadata creation for FAIR data sharing and re-use, as the first researcher to benefit will be the researchers creating the data themselves. This platform could efficiently assist with different modalities such as text, images, video and 3D spatial, across many different domains beginning with identified priority areas. This will leverage AI models to pre-label data, make the best use of the researcher's time by showing you the most valuable datum to annotate, and actively improve the model while you're labelling. Centralisation can enable fine-tuning these models at scale on collected data (where appropriate), helping the research community in a positive feedback loop. There is also a need for specific AI-platforms relevant to specific research themes, an example is intelligent analysis and enhancement of microscopy images of various materials such as metal and biomaterials, and biological processes. In addition, with each upgrade to a newer generation of microscopes, the amount of data acquired will increasing significantly, which demand AI-accelerated analysis. With AI-driven digital twin facility, the ecosystems of manufacturing can be streamlined through materials analysis, materials design, and materials manufacturing (e.g., 3D printing). Emerging technologies in AI and machine learning require flexible, diverse, and scalable computing infrastructure at a massive scale and these needs are not met by traditional Tier-1 HPCs. Current systems rely on asynchronous batch-job submissions, unsuited to AI's iterative workflows that demand real-time feedback and GPU-accelerated computing. To fill this gap, well-resourced universities and research institutions are investing in private GPU clusters, but these investments are much smaller than global leaders in AI. This will prevent us from fully capitalising on the many freely available models developed overseas at tremendous expense. Training and fine-tuning AI models for local contexts also require hardware far beyond what is currently available nationally. Accelerating research demands a novel but complementary service model compared to the well-established Tier-1 HPC model. We need agile, on-demand access to specialised hardware that enables interactive and flexible multi-tenancy use.

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

The NDRI strategy focused heavily on AI and associated compute but we would like to re-emphasise that the current investment in GPU and sovereign AI capability is catastrophically far behind - researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. A key component of this priority is predicting weather and climate change and building strategies for adaptation. Until recently much of the focus has been on physics-based weather, land surface and ecosystem models. The release of AI weather models (Google's GenCast, Europe's AIFS) have created an alternate approach. In many disciplines a combined approach is gaining prominence – physics-informed machine learning. Investment is needed in the development of AI-driven weather, land surface and ecosystem models and their deployment so their outputs can be used to answer domain-specific questions, for example changes in carbon sequestration in soil and vegetation under different climate scenarios.

Q31.

Supporting healthy and thriving communities

The current investment in GPU and sovereign AI capability significantly lags behind requirements for both biomedical and cultural research supporting healthy communities. While initiatives like the Australian BioCommons' deployment of AlphaFold demonstrate the potential of AI in life sciences, and our work with ARDC on digital humanities platforms shows the value for cultural research, we need much broader infrastructure support. Critical infrastructure requirements include: Enhanced AI computing capacity for biomedical applications: -protein structure prediction -drug discovery -vaccine development -medical imaging analysis -clinical data processing -genomics and other -omics research for precision medicine -population health modelling Code-free AI platforms that democratize access to: -AlphaFold and similar biomedical AI tools -large language models for medical literature analysis -medical image processing pipelines -clinical trial data analysis Digital humanities infrastructure supporting community wellbeing: -national Digital Humanities Collections Platform enabling preservation and access to cultural heritage -Language Data Commons of Australia supporting linguistic and cultural research -Australian Text Analytics Platform facilitating analysis of community narratives and social trends -tools for processing and analyzing historical health and demographic data These platforms must be accessible to researchers regardless of their computational expertise or institutional resources, supporting equitable access to cutting-edge research tools across both medical and humanities research communities. The integration of biomedical and cultural research infrastructure will enable a more holistic approach to supporting healthy and thriving communities. Investment in sustainable, long-term infrastructure is essential to maintain both physical and cultural health outcomes, ensuring research benefits can be realized across all sectors of society.

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Current digital infrastructure requires significant enhancement to properly support Aboriginal and Torres Strait Islander research and knowledge systems. Working with ARDC's Humanities, Social Science and Indigenous Research Data Commons, we identify several critical needs: Culturally appropriate digital infrastructure that: -supports First Nations' data sovereignty -enables community-controlled access management -facilitates proper cultural protocols -provides secure storage for sensitive cultural materials AI and computing capabilities that: -support Aboriginal and Torres Strait Islander language preservation and processing -enable digitization of cultural materials -facilitate responsible AI use with Indigenous data -support CARE principles alongside FAIR principles National-scale platforms for: -Aboriginal and Torres Strait Islander knowledge collection-building -First Nations community-led data labelling and curation -long-term preservation of digital cultural heritage -equitable access across all institutions This infrastructure must be developed in partnership with First Nations' communities and researchers, ensuring it serves their needs and respects cultural protocols.

Q33.

Protecting and restoring Australia's environment

The NDRI strategy focused heavily on AI and associated compute but we would like to re-emphasise that the current investment in GPU and sovereign AI capability is catastrophically far behind - researchers need AI computing capacity to leverage open-source AI models in applied research domains. This will have far-reaching impacts across all of the research themes and priorities. Environmental research is an excellent example of how data analytics and specifically AI can accelerate and uplift research. It truly is gene to ecosystem meaning analytical methods encompass the omics-disciplines (through BioPlatforms Australia) up to continental-scale observations through earth observation from satellites (through TERN). In between are many field-based sensors for assessing biodiversity and ecosystem fluxes. Well curated omics, field sensor and earth observation data accessible through AI-assisted coding and non-coding platforms (e.g. image labelling, image segmentation) will allow researchers from diverse backgrounds to answer research questions relevant to their field. An exciting opportunity in this priority area is the potential for the development of foundational model for environment that is multi-modal in that is can ingest and use all of the datasets described above. Current approaches in empirical modelling of the environment require dataset and study-specific models which lack generalisability. Foundational AI models, the most famous being ChatGPT allow for one model that can predict many different phenomena. In the past 18 months foundational models for earth observation have been released (e.g. Prithi by NASA/IBM) and NRI investment exploring the deployment and fine tuning of these for researchers is needed. There are two critical gaps in NRI related to this research priority (ii) freshwater ecosystems (ii) grain cropping zones. Freshwater: outside of major reservoirs used for drinking water there is limited data collection, curation and sensing infrastructure especially for chemical and biological properties of water in stream, rivers and lakes. This is an obvious area of expansion for TERN. Grain cropping zones: many environmental zones have an associated NRI facility; urban (AURIN), coastal and marine (IMOS), natural and grazed landscapes. A critical gap is the grain-growing regions of Australia which are highly impacted ecosystems due to clearing and management. This region also includes major irrigation areas (cotton, rice, horticulture) which impacts on the poorly monitored freshwater resource (see above). This region through application of nitrogenous fertilisers also has a significant impact on greenhouse gas emissions. Finding the balance between environment and production is difficult in the best of circumstances but more so in the absence of a dedicated NRI focus. This is an obvious area of expansion of TERN and APPN.

Q34.

Building a secure and resilient nation

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.

We identify a critical need for new national capability that bridges the gap between traditional HPC infrastructure and emerging AI-driven research requirements. 1. Australian Research Computing. Aligned. (UNSW submission to which we are a signatory). A new coordinating capability comprising: a) Australian Research Computing Advisory Panel (ARCAP) -Coordinate national compute strategy across all tiers -Develop comprehensive vision for research computing -Guide investment priorities and technology adoption -Ensure alignment between facilities and research needs -Coordinate workforce development and training b) Australian Tier 2 Network (AT2N) -Network of institutional HPC facilities -Standardized metrics and best practices -Support for emerging compute paradigms -Co-location with research instruments -Cross-institutional resource sharing 2. A dedicated facility supporting AI-driven research across all applied research domains and working directly with each existing NRI facility: -Large-scale GPU computing resources -Interactive computing environments -AI model deployment, configuration, user interface and fine-tuning for applied science uses, targeting maximum user base and acceleration of other research domains -Secure processing environments -Integration with existing NRIs 3. National Research Data Platform (NRDP). An integrated platform providing: -AI-assisted data labelling -Secure data repositories -Domain-specific tools -FAIR/CARE compliance support -Cross-domain data integration 4. Trusted Research Environments on ARDC Nectar. Secure computing environments for sensitive data: -Solve a national problem once, nationally. -Standardized governance frameworks -Domain-specific workflows -Integration with national compute -Cross-institutional collaboration This structured approach would enable coordinated development of national research infrastructure while ensuring alignment with research needs and efficient resource utilization. The combination of these capabilities would position Australia competitively in the global research landscape while maintaining appropriate governance and security standards.

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.

This question was not displayed to the respondent.

Q39.
3.3 Please indicate your (one or more) primary reasons for interacting with NRI:

This question was not displayed to the respondent.

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.

Career progression and stability of NRI staff NRI is driven by highly skilled technical and professional staff who in many cases have limited opportunity for career progression and uncertainty about continuity of contracts. Many NRI technical staff hosted within universities are classed as professional staff where promotion is not possible in the same manner as academic staff. In many cases they need to apply for a different position or leave research entirely to achieve a salary increase or have career growth. As an example staff working in disciplines relevant to the NDRI strategy (e.g. data scientists, software engineers) are attractive to the private sector, where they also have a clearer career progression and salary increase trajectory. In the era of AI, tech companies driving the paradigm shift (Google, Amazon, NVIDIA) may be a more attractive place to work. Ideally highly skilled technical infrastructure staff should have promotion possibilities similar to academics or IC track engineers at FAANG companies but with different criteria. To this end, discussions needed to be had about making this uniform across the sector and about possible funding models. In addition, bureaucratic sluggishness on all sides often results in fixed-term contracts of key staff engaged through NCRIS co-funding arrangements either being renewed at the 11th hour or lapsing months before renewal occurs – by which point the best staff have found employment elsewhere and will not return. The importance of streamlining the administration of contracts between institutions and providing clarity and security of employment for these highly skilled staff cannot be understated. NRI training There needs to be a national approach to developing a cross-institutional community of trainers developing and delivering training. A starting point would be to focus on training related to data-intensive disciplines with a wide pool of researchers (e.g. scripting, machine learning, bioinformatics, high performance computing). This necessitates leveraged funding specifically targeted towards open, cross-institutional training programs created, organised and run by partners at multiple institutions for the entire community. Many resources are wasted at each institution in poorly reinventing the same trainings and delivering one-off courses privately to their own staff and students. If we all collaborated and shared training materials, courses, content, and cross-promote, the efficiencies gained from this approach would free up resources to quickly develop new material in a more agile and responsive fashion. A relevant example today is the potential for rapid advances in research automation if AI tools like CoPilot are fully adopted. Such workshops if delivered nationally could also be opened to government agencies and the private sector, upskilling a larger section of the national workforce. This training could be packaged in form of micro-credentials and certificates.

Q49.

4.2 Optional Document Attachment.

Note: Our strong preference is that answers are provided against the relevant questions in the survey. However, this file upload option is available for submissions in file format, where needed. Please ensure the document includes your name or organisation.