



National Research Infrastructure Roadmap consultation 2021.

The 2021 National Research Infrastructure (NRI) Roadmap aims to provide a roadmap and vision for NRI investment for the next 5 to 10 years. Are the recommendations appropriate to the current NRI environment?

- Recommendation 2 – providing continuity and long-term funding to existing NRI should be balanced with ongoing evaluation of success: delivery of agreed milestones; end-user service orientation and demonstrated metrics of Infrastructure use and uptake; and engagement with the research community, industry, and international endeavour. Directly seeking feedback from the research communities who have interacted with different research infrastructures/NCRIS initiatives would be a valuable component of evaluation. There should be avenues to support new initiatives to develop proposals. Additionally, determining where economic return on investments is greatest should guide future investment strategy, with a long-term vision.
- Recommendation 3 – is the theme “medical products” too narrow in definition since it incorporates ‘omics and biobanking, which are preceding steps to the development of medical products? The National Digital Research Infrastructure (NDRI) as an enhancement, and integration of datasets, to support these challenges is vital. The masses of data being generated by data intensive research, such as through the MRFF, will achieve maximal value if made available for future research use.
- Recommendation 7 – development of a NDRI strategy should consider the range of requirements of different sectors of the research community. For example, the needs of meteorological or geological scientists may be well met with existing NRI, but the requirements to support translational health and genomic innovation are very different. The NDRI strategy should also consider parallel activities across the health discipline, including but not limited to the National Digital Health Strategy, the National Health Interoperability Plan, and National Approach to Genomic Information Management Blueprint.

Do the principles articulate the vision and key elements required of NRI, including investment?

- The principles adequately articulate the elements required of NRI, however explicit reference to service orientation, needs of the research community, and achievement of agreed strategies/outputs should be included.
- In the context of the statement that “NRI funding is mainly provided through the Australian Government’s NCRIS program” and figure 2 illustrating the programs and their levels of funding, the value of NCRIS funding available to support the other programs is quite striking. Linking back to the comments in response to the previous section – this emphasises the need to continually evaluate the NCRIS supported programs to ensure investment is directed



where most needed and adopt an agile approach to funding. This also supports the need for enhancing co-investment opportunities, as described in the principles.

The NRI Roadmap has a clear focus on identifying the NRI investments required to support Australian research over the next 5 to 10 years. Are there any national research infrastructure needs missing in the draft Roadmap?

- Next generation omics has been identified as an emerging research trend and area, however it is unclear how this will be addressed by the current stable of NRI, nor the listed disciplines under the challenge framework (beyond reference to ‘medical products’ / ‘modern manufacturing’).

A key priority for Australia is to enhance research translation. The 2021 NRI Roadmap identifies some reforms and investments to achieve this. What other reforms would help deliver this priority?

- National research infrastructure, such as those coordinating and progressing the translation of health innovation, national health data standards and practice, and a national approach to genomic research programs funded through the NHMRC and MRFF, have translation enhancing capabilities. This improves the efficiency and impact of health research investments by Governments and responds to the recommendations of the Inquiry into approval processes for new drugs and novel medical technologies in Australia (The New Frontier - Delivering better health for all Australians, November 2021). Mechanisms and sustainability of funding for such initiatives remain unclear, while their translational value is demonstrable.

The Roadmap proposes that Australia could make landmark investments to drive step changes in research and innovation over the next 10 to 15 years. Do you agree with the assessment of potential areas for investment in the report? What other areas do you consider might fit the definition of landmark investment?

- Australian Genomics supports the four areas put forward for NRI investment. Two areas particularly align with our work: “cutting edge national digital research infrastructure” and “research translation infrastructure to drive increased industry investment”. We welcome the strategic integration of large-scale datasets (section 4.2) and point to the National Digital Health Strategy and National Health Interoperability Plan currently being developed, for harmonisation. Development of this strategy also aligns with the delivery of implementation recommendations for the National Approach to Genomic Information Management Blueprint.
- The draft National Health Interoperability Plan defines the problem: “In theory, the simplest approach would be to store a copy of all information in a central national repository. However, this is not practical because there are limits to what can be stored nationally, and



there are heightened security risks to manage from such an approach. This is due to the massive volume of health information that exists and is generated; the variability of privacy laws; the need for minimum data sets, data structure and standards; the significant system changes required across the entire healthcare system; and jurisdictional and national healthcare legislative requirements". This lends support to the development of federated access systems with authentication mechanisms and standards, with built in analysis tools.

- Thus, currently supported infrastructures should be assessed to ensure they are meeting the needs of evolving research data communities and building future capabilities to address priorities of increasingly integrated national and global data landscapes. Large-scale integrated datasets are increasingly being supported by data infrastructures which are federated; interoperable across different cloud and hybrid systems; can support seamless access and use of data across organisations, using standardised interfaces to connect across systems; with flexibility to incorporate both clinical and research data, making data available for analysis without the need to download data locally, including using data streaming frameworks and solutions. In 2020, Australian Genomics undertook surveys of national and international genomic data infrastructure providers, which showed clear trends in support of federated cloud-based systems, that adopt established data standards, and can support external data sharing beyond the primary infrastructure.

Please add any other comments you would like to provide to the Expert Working Group.

- The development of meaningful engagement mechanisms and the Indigenous Data Network are positive and necessary steps forward, noting the importance of engaging with Aboriginal and Torres Strait Islander advisory groups in the development of the Roadmap.
- Concern about the broad use of the term "open access" throughout the draft Roadmap when referring to datasets – there should be care with application of this terms since health datasets should be controlled access.
- Data access and interoperability described on p. 55 – "improved policies, procedures, and mechanisms for safe, secure and ethical use of data between researchers across jurisdictions" – this is an area of significant concern to the health research community. Australian Genomics has spent more than 5 years pursuing linked administrative health data where multiple, sequential applications have been required in different jurisdictions to access data. Availability/access and interoperability of data for research use more broadly is also an ongoing concern to researchers, and the proposed updates to the Privacy Act have researchers collectively concerned about availability of health data for research.
- Australian Genomics would welcome the opportunity to participate in any future consultation activity relating to the development of the NDRI Strategy and has strong credentials in this area.