

Submission

2016 National Research Infrastructure Roadmap Capability Issues Paper

Name	Catriona Jackson
Title/role	Deputy Chief Executive
Organisation	Universities Australia

Capability areas

Question 1: Are there other capability areas that should be considered?

The proposed list of capability focus areas seems appropriate, although it should be confirmed through the consultation process. It is important, though challenging, to ensure that areas with strategic national impact but relatively small research communities are given appropriate consideration.

Governance

Question 2: Are these governance characteristics appropriate and are there other factors that should be considered for optimal governance for national research infrastructure.

Strong governance models are vital for the successful implementation of the national research infrastructure capability areas, and the key characteristics outlined in the paper are appropriate. The most appropriate and effective governance arrangements will vary from facility to facility, within and between the capability areas. A range of governance arrangements are currently in place under National Collaborative Research Infrastructure Strategy (NCRIS), adapted to the specific partnership arrangements and core objectives of individual facilities.

Building genuine national capability is a long-term, strategic exercise that requires stable funding and a program of continuous improvement. Universities Australia (UA) believes there would clear benefits in having a permanent and independent body to oversee the development, maintenance and delivery of our national research infrastructure. At a minimum, consideration should be given to establishing a sub-committee under Innovation and Science Australia with appropriate research and capability expertise.

International

Question 3: Should national research infrastructure investment assist with access to international facilities?

Question 4: What are the conditions or scenarios where access to international facilities should be prioritised over developing national facilities?

The proposed approach to prioritising access to international facilities is pragmatic. In some instances, it will be more effective for Australia to contribute to global infrastructure than in Australian-based facilities, particularly where such infrastructure cannot be built by Australia alone.

There are also clear benefits in investing in associate memberships and formal agreements to ensure Australian researchers have access to the best facilities in the world. However, in general, funding for individual Australian researchers to travel to and access international facilities should be delivered through research funding programs rather than the national research infrastructure investment. International research infrastructure access is an additional cost of conducting research that is not reflected in the current program mix or covered by competitive research funding. This is a pressing concern for the sector, but is a more extensive issue than can be managed through our finite research infrastructure investment.

Australia's location provides a competitive advantage for hosting some international research infrastructure, particularly in areas where we have the potential to provide international leadership. International research agencies are looking to link to Australia's cutting-edge and globally unique facilities, data and institutes across a number of disciplines, such as marine observing and cross-cultural studies. The quality of our facilities is key to attracting international researchers and fostering international collaborations. These advantages should be capitalised upon to ensure Australia remains internationally competitive in both basic and application driven research.

Skills and training

Question 5: Should research workforce skills be considered a research infrastructure issue?

Question 6: How can national research infrastructure assist in training and skills development?

Question 7: What responsibility should research institutions have in supporting the development of infrastructure ready researchers and technical specialists?

It is important to distinguish between research skills and skills associated with management and use of research infrastructure. Skilled technical and research support staff are integral to the productivity, accessibility and viability of research infrastructure facilities, and must be supported accordingly. Cutting edge facilities can present a significant barrier to users; expert support staff are critical to genuinely accessible research infrastructure. Highly trained staff who are able to provide guidance on project design add significant value to the research effort, and drive innovation within research infrastructure. A pressing issue for the sector is the development of career paths for specialist staff. Predictable, long-term funding is essential for employment security and the retention of staff.

Access to state-of-the-art research infrastructure should be seen as a fundamental part of participating in world-leading research and the research training process, both at the pre- and post-doctoral levels. World-leading teams coalesce around the high quality infrastructures and provide an exceptional experience for domestic students.

The general level of technical skill amongst researchers is a related, but distinct policy issue. Our capacity for research excellence requires us to develop the skills of all our researchers. eResearch infrastructure, in particular, is transforming how research is undertaken across all disciplines. Our researchers must be equipped with the skills for data analysis in an increasingly data-driven research environment. There is scope to consider both training in discipline-specific technical skills and general digital literacy as part of the Government's and sector's response to the Australian Council of Learned Academies (ACOLA) Review of Australia's Research Training System and the research block grant reforms, as opposed to a research infrastructure issue. There are advantages in separating

research infrastructure issues and issues related to training personnel directly responsible for research, including providing a clearer understanding of the role of research funding and research institutions.

Access

Question 8: What principles should be applied for access to national research infrastructure, and are there situations when these should not apply?

The principles underpinning NCRIS provide a good basis for future decisions regarding access. There should be as few barriers as possible to accessing research infrastructure for those undertaking meritorious research, and infrastructure should be developed on a collaborative, national, and non-exclusive basis. Major national infrastructure should serve the entire national research system and not only those institutions that are financially or geographically linked to a facility. Geographical barriers to access can be managed where appropriate by creating facilities with multiple nodes across Australia. Businesses and industry often face an additional barrier of visibility of research infrastructure. Facilities should be encouraged to be genuine accessible to the broader innovation system.

A broad user base, independent of institutional or disciplinary groups, maximises the impact of every dollar invested and enables innovation within the research system itself. The principles underpinning access and pricing should be transparent and support flexibility in charging models between facilities and for different users.

The level of cost recovery for the majority of facilities should reflect a range of considerations. The pricing regimes for industry and international researchers should balance users' capacity to pay with the value of encouraging industry to conduct research onshore and the benefits of research collaboration. The cost of providing some services is such that they must be delivered as a public good, and for others identifying the cost of individual users is not possible or practical. Pricing regimes should recognise that the key objective for national research infrastructure is to maximise public benefits, and ensure access for meritorious research.

Defunding and decommissioning

Question 9: What should the criteria and funding arrangements for defunding or decommissioning look like?

UA supports the proposed approach for defunding and decommissioning. Where possible, however, facilities should be supported to identify the long-term emerging directions and needs in their capability areas and position themselves for maximum relevance to their user base over time. For example, Bioplatforms Australia under NCRIS has invested strategically to build new capability and critical resources to support national scientific challenges. Government should encourage candid assessments of future funding requirements by infrastructure and facilities that do not require Government funding at a particular point in their development should not be assumed to not require funding in the future.

Funding for research infrastructure

Question 10: What financing models should the Government consider to support investment in national research infrastructure?

UA strongly supports a flexible and transparent approach to co-investment requirements. Although the NCRIS program had no formal requirement for co-investment, the program delivered \$1.06 from partners in industry, research organisations and state and territory governments for each dollar invested by the Australian Government.¹ A key lesson from NCRIS is that allowing flexibility for state and territory governments to deliver on co-investment commitments encouraged a higher level of co-investment than would have otherwise been achieved by requiring co-investment up-front. Ensuring strong research linkages and collaboration with neighbouring countries may also maximise opportunities for co-investment with other nations.

Options for financing will also inform the selection of investments following the identification of capabilities. A consultative process should be used to determine the location for research infrastructure, and appropriate governance and operating models for research infrastructure to account for suitable co-investment and collaboration arrangements.

While co-investment and flexibility in funding should be encouraged, it is important to recognise that identifying and coordinating different funding streams is a significant and real cost to the research infrastructure system.

Funding strategies should recognise the need to support emerging capability areas that are identified in the mid to later years of the funding cycle.

UA warmly welcomes the Government's commitment to ongoing funding for the existing NCRIS facilities. Previous roadmaps have found that the private sector is not willing to provide long-term, sustainable funding for research infrastructure. It is unrealistic to expect the private sector to cover the cost of facilities used by a range of researchers, essentially on behalf of the research sector. Government funding is vital to the viability, utilisation and success of public research infrastructure, and is an essential part of the funding mix in all our competitor countries.

Standards and accreditation

Question 11: When should capabilities be expected to address standard and accreditation requirements?

Australia's national research infrastructure investment aims to ensure Australia remains competitive with the best in the world. As such, the facilities should be expected to commit to providing the highest standards of processes and services, with appropriate accreditation requirements.

¹ KPMG 2015, National Collaborative Research Infrastructure Strategy Project Reviews - Overarching Report, p. 7. Produced for the Department of Education and Training.

Capability focus areas

Question 12: Are there international or global models that represent best practice for national research infrastructure that could be considered?

Australia is a leader in the provision of cost-effective and world-leading research infrastructure amongst countries with similarly-sized economies and populations. It is held up as an exemplar by the Organisation for Economic Cooperation and Development (OECD) and the international community through the International Research Infrastructure Conferences.

Other comments

Research infrastructure is an essential part of ensuring excellent and transformative research, including for industry. UA welcomes the Australian Government's commitment to undertake a National Research Infrastructure Roadmap exercise. The key issues are captured well in the paper, and the process has been constructive and consultative.

Further details about the next stages would greatly assist the sector. There are a range of factors that could inform the identification of defined investments, where they should be located, and the governance and operational arrangements that should apply. The details of the investment strategy, if and how funding should be retained for future investments, and the process to manage differences in project development and functional lifespans should be clearly articulated to stakeholders.