

# Submission

## 2016 National Research Infrastructure Roadmap Capability Issues Paper

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### Capability areas

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

The areas canvassed in the consultation appear to broadly address key capability areas. In general, the ATN would like to propose the following principles for evaluating capability areas suggested in the consultation process:

- Capability areas, where possible, should align with National Science and Research Priorities, and/or areas where Australia has a genuine competitive advantage or potential growth area(s);
- Capability areas should, where possible, have clear alignment with Industry Growth Centres and their decadal sector competitiveness plans;
- Consider how capability areas tap into cross-cutting capabilities such as eResearch infrastructure;
- Consider how capability areas map onto international infrastructure precincts, capability and requirements; in addition to Australian state and territory investment areas, capabilities and requirements.

### Governance

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

Similar to how the Government's National Innovation and Science Agenda has elevated science and innovation to a whole-of-government level, national research infrastructure should be co-ordinated under whole-of-system governance structures.

Currently, oversight for national research infrastructure is spread across numerous portfolios and departments, and the ATN strongly encourages a single independent entity to oversee and guide investment in national research infrastructure to ensure Australia is able to prioritise and manage funding over long-term timescales, reduce duplication and consolidate investments more efficiently. The optimal governance model key characteristics presented in the paper are reasonable and could be used by the independent body as starting principles to help achieve optimal governance.

The main goal of the National Research Infrastructure independent body would be provide a strategic, coordinated approach to investment in research infrastructure. For example, each of the

Government's Industry Growth Centres have been tasked with developing and delivering decadal *Sector Competitiveness Plans*, with the goal to "lift the capability of the sector, boost productivity and skills, create jobs, reduce red tape and engage with international opportunities."<sup>1</sup> There could be a role for the National Research Infrastructure independent body to help coordinate, prioritise, and provide oversight for the research infrastructure requirements and investment to support each of the Industry Growth Centres to implement their plans. Similarly, the National Research Infrastructure independent body could look to consulting and consolidating activity at the state and territory level to ensure that duplication does not occur, and to encourage co-investment between local and federal governments.

## **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 ATN supports the consultation paper's view that national research infrastructure should be, where possible, aligned with Australia's National Science and Research Priorities (Priorities). However, it should be noted that many of the challenges presented by the Priorities are not unique to Australia; they represent global challenges, and the capability of Australian researchers to help address them relies on them being able to link up with researchers internationally and access global infrastructure. As such, funding for Australian researchers to access international facilities is a sensible investment which also aligns with the broader goals of the National Innovation and Science Agenda, particularly its Global Innovation Strategy. Again, a co-ordinated, whole-of-government approach will be crucial to determining the right levels and means of investment between supporting local infrastructure, attracting and fostering international collaboration and providing local researchers with access to international facilities.

## **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?**

Investment in both infrastructure and skills are key elements of an advanced knowledge economy. Developing and investing in the human capital of research infrastructure (e.g. the management and leadership of research infrastructure, technical expertise) has been a critical focus of international best practice in research infrastructure management.

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<sup>1</sup> Department of Industry, Innovation and Science, Industry Growth Centres, <http://www.industry.gov.au/industry/Industry-Growth-Centres/Pages/default.aspx>

The European Commission’s Report on the Consultation on Long Term Sustainability of Research Infrastructures suggests that managing and developing the skills of managers, operators and users is an essential pre-condition for the long-term sustainability of research infrastructure.<sup>2</sup> In a survey of 189 European stakeholders involved in research infrastructure, including public research organisations, policy makers, funding agencies, public and private research infrastructure operators and research infrastructure users, participants were asked about measures used to support skills development of European Research Infrastructure (RI) managers.

Participants reported promoting staff exchange programmes (12.2%), developing dedicated professional training for research infrastructure managers (10.0%) and sharing of experience and best practice (7.5%) were deemed as the main measures that could be taken to support skills development of European RI managers. (see Fig 1.)



**Figure 1. Measures to support skills development of European Research Infrastructure managers (%)**

The European Commission report goes on to suggest there may be a role for formalised, accredited programs for creating career paths for research infrastructure managers and technical staff. For example, the RiTrain project is funded by the European Commission, and looks to improve and professionalize the training of managerial and leadership staff in research infrastructures via a modularised, executive master’s degree targeted at research infrastructure managers.<sup>3</sup> However, only 35.1 per cent of survey respondents recognised a need for such harmonised accredited curriculum. Instead, there was greater recognition and support for the need for a staff exchange

<sup>2</sup> European Union (2016) Report on the Consultation on Long Term Sustainability of Research Infrastructures, [https://ec.europa.eu/research/infrastructures/pdf/Its\\_report\\_062016\\_final.pdf#view=fit&pagemode=none](https://ec.europa.eu/research/infrastructures/pdf/Its_report_062016_final.pdf#view=fit&pagemode=none)

<sup>3</sup>RiTrain (Research Infrastructure Training Programme), <http://ritrain.eu/>

programme targeting managers and operators of research infrastructure (79.8%) and dedicated training for industry users (56.9%).

Whether support for such skills development sits within the remit of national research infrastructure funding should be considered by the proposed independent body for overseeing national research infrastructure investment for research infrastructure users, managers and technical staff.

## **Access**

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

The ATN supports Universities Australia's view in its submission that the principles underpinning NCRIS should form the starting basis for access considerations. Transparent, equitable access and a merit-based approach are critical to ensure maximum value is gained from national research infrastructure investments.

In some cases, it may be appropriate to provide incentives or subsidies for research users who may otherwise not have the resources to access infrastructure. For example, consideration could be given to voucher systems to help industry (particularly SMEs) gain access to critical research infrastructure. Such incentives operate at the state level such as the South Australian Government's Innovation Voucher Program which awards SMEs up to \$50,000 to partner with eligible research and development organisations to support technical research, design development and validation, prototype development and development of innovative production processes.<sup>4</sup> An example of a successful project funded by this scheme is SME, TGR Biosciences, who partnered with the Ian Wark Institute at UniSA to develop a cost effective microfluidic chip device to deliver faster standard laboratory tests (with an estimated market value of \$400 million) by using the university's facilities to conduct multiple simultaneous tests for detecting substances in liquids.

## **Defunding and decommissioning**

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

The ATN suggests that forecasting and planning for the defunding or decommissioning of national research infrastructure should, where possible, should be signposted early on in the . The framework developed by the Group of Senior Officials on Global Research Infrastructures (GSO), of which Australia is a member and current chair, suggests that:

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<sup>4</sup> Government of South Australia (2016) Innovation Voucher Program, <http://www.statedevelopment.sa.gov.au/industry/manufacturing/manufacturing-programs-and-initiatives/innovation-voucher-program>

“Planning for termination or decommissioning of a global research infrastructure initiative should be established early in the development of the facility where possible or relevant, by defining criteria for the conclusion of operation, and establishing exit criteria and procedures for closing down and recognizing future termination liabilities or encumbrances on the sponsors at the conclusion of operation.”<sup>5</sup>

The above should necessarily be developed in consultation with both sector-specific and research infrastructure experts, research infrastructure users, industry, research organisations and other interested stakeholders including state and territory governments where appropriate.

## **Funding for research infrastructure**

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

In order to help attract co-investment, the Australian Government should send a signal – both nationally and internationally - that research infrastructure will be supported in the long-term and funds are protected with a degree of certainty. Significant co-investment from non-tax payer sources will be much more likely if there were reasonable funding certainty beyond the current short term funding cycles. There may be merit in legislating part of the Australian Government’s investment in national research infrastructure to ensure stability and long-term funding certainty.

Precedent for this has been set by the UK Government who boldly declared in its Allocation of Science and Research Funding 2015/16 report,

“At a time of tight control over public spending, the Government remains committed to supporting our world-class science and research base. We continue to protect the science ring fence in cash terms for 2015/16, and in addition have announced investment in science infrastructure of £1.1bn a year protected in real terms to 2021, together with funding for new programmes such as Quantum Technologies, the Newton Fund, and further investment in high level skills.”<sup>6</sup>

The ATN suggests that planning and funding timeframes for national research infrastructure, to be managed by the National Research Infrastructure independent body, should be on a 7 year cycle with a comprehensive review after year 4 of each cycle, and minimum 20 year horizon plans.

As recommended in the ATN’s report with the Australian Industry Group, *Innovate and Prosper*, incentives also need to be provided for co-investment in research infrastructure between universities, other publicly funded research organisations, industry and state and federal government.<sup>7</sup>

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<sup>5</sup> Group of Senior Officials on Global Research Infrastructures (2013) The Framework for Global Research Infrastructures, [https://ec.europa.eu/research/infrastructures/pdf/gso\\_framework\\_for\\_global\\_ris.pdf](https://ec.europa.eu/research/infrastructures/pdf/gso_framework_for_global_ris.pdf), p. 3

<sup>6</sup> Department for Business Innovation and Skills (2014), Allocation of Science and Research Funding 2015/16: Investing in world-class science and research, p. 5,

<sup>7</sup> Australian Technology Network and Australian Industry Group (2015) *Innovate and Prosper: Ensuring Australia’s Future Competitiveness through Univeristy-Industry Collaboration*, <http://www.atn.edu.au/siteassets/publications/atninnovateprosper.pdf>, p. 24

The report was produced in consultation with universities, government agencies, peak bodies and businesses, with stakeholders recommending that SMEs could invest in national research infrastructure with in-kind contributions where significant financial contributions were not possible. Recognising the benefits derived from world-class collaboration on research infrastructure, such investment could underpin stronger three-way partnerships between universities, industry and government, with SMEs gaining 'skin in the game'.

## **Standards and accreditation**

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

The need for capabilities to address standard and accreditation requirements should be not be a stringent, regulatory burden, but could take the form of a service charter, as applied by the European Commission for the access to research infrastructures.<sup>8</sup> The Charter sets out non-regulatory principles and guidelines to provide a reference for matters relating to access to research infrastructure, skills development and promoting collaboration between research organisations, business and public services.

## **Capability focus areas**

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

International and global models have been referenced through this response as appropriate.

## **Other comments**

The ATN has opted to only answer questions 1 – 12 of the consultation, with member universities providing specific feedback on Capability Focus Areas in their individual submissions.

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<sup>8</sup> European Commission (2016) European Charter for Access to Research Infrastructures: Principles and Guidelines for Access and Related Services, [http://ec.europa.eu/research/infrastructures/pdf/2016\\_charterforaccessto-ris.pdf#view=fit&pagemode=none](http://ec.europa.eu/research/infrastructures/pdf/2016_charterforaccessto-ris.pdf#view=fit&pagemode=none)