

Submission

2016 National Research Infrastructure Roadmap Capability Issues Paper

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- Question 1: Are there other capability areas that should be considered?
The primary concern from an Australian SME perspective is the translation of Australia's research where it has a meaningful impact on the Australian economy. Hence, from our perspective is the development of capabilities that are associated with execution and commercialisation.
- Question 2: Are these governance characteristics appropriate and are there other factors that should be considered for optimal governance for national research infrastructure. We note that with respect to the panel of capability experts industry was not represented – from a governance perspective it would be prudent that industry forms part of this panel as they would bring a perspective on translation.
- Question 3: Should national research infrastructure investment assist with access to international facilities?
Yes – we believe global relevance is important beyond the conference setting. Understanding how infrastructure is accessed on a global scale also provides the opportunity for Australia to not only collaborate but also focus on niche expertise that can be offered at a global level.
- Question 4: What are the conditions or scenarios where access to international facilities should be prioritised over developing national facilities?
We believe where the ROI makes most sense – rather than duplicating all infrastructure a case could be developed where the Australian site focuses on a particular capability and the collaborative international site focuses on another. A good example in our network is the photonics capabilities of IPAS (University of Adelaide) and COPL (University of Laval). Rather than duplicate each sites infrastructure focus on the core capability strength of each and collaborate respectively.
- Question 5: Should research workforce skills be considered a research infrastructure issue?
Yes and this dictates the need for an effective Quality Management Systems, training and mentoring. The technology workforce is a fluid entity and cannot be limited through restrictive contractual obligations. Being able to move the workforce seamlessly and remove restrictive barriers such as travel logistics only promotes a collaborative culture.
- Question 6: How can national research infrastructure assist in training and skills development?
Through the implementation of an expansive Work Integrated Learning program,

scholarships, fellowships as well as an access program for industry (that is industry scientists and engineers can also apply for fellowships) would promote skill development. The objective is to expand the capability skill set across academic and industry research to promote the entrepreneurial passion.

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

The primary responsibility of the research institutions is to provide a safe and effective environment while protecting the intellectual property of the institution's capability infrastructure – removing barriers and administrative burdens would be the ideal outcome. The benefits will flow through a more expansive access creating a global identity for the institution differentiating them from the infrastructure alone.

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

It is our view that access should be actively promoted but as suggested above this should be in the interest of the host institution – it is our experience that where an institution is proactive in promoting access to their infrastructure and are flexible in how they enable access there is a natural promotion of the institutions identity and differentiation.

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

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

Commercial models including industry access where the infrastructure may be utilized to generate new revenue streams which may also underpin industry investment in the infrastructure itself.

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

With industry involvement this can be brought about earlier in the life cycle, driven by external customer demand.

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

We believe the arrangement that Trajan has with IPAS and the University of Adelaide is amongst best practice and could be applied elsewhere across the network.

Question 13: In considering whole of life investment including decommissioning or defunding for national research infrastructure are there examples domestic or international that should be examined?

Question 14: Are there alternative financing options, including international models that the Government could consider to support investment in national research infrastructure?

Health and Medical Sciences

Question 15: Are the identified emerging directions and research infrastructure capabilities for Health and Medical Sciences right? Are there any missing or additional needed?

We continue to be drawn back to the challenge of translation. In that sense what is missing in the Australian setting is mid tier capability; from practical process enhancement through to rapid prototyping capability.

Question 16: Are there any international research infrastructure collaborations or emerging projects that Australia should engage in over the next ten years and beyond?

Question 17: Is there anything else that needs to be included or considered in the 2016 Roadmap for the Health and Medical Sciences capability area?

Yes, we believe that there is the opportunity to explore a somewhat different model in Australia. Government(s) are the financiers of medical research, but in Australia they are also supporting the provision of health services. If the right infrastructure can be put in place and the right connections made, one can service the other. If government funded research could also address cost/quality challenges in government supported health care then commercial solutions could be developed that have global relevance and scalability.

Environment and Natural Resource Management

Question 18: Are the identified emerging directions and research infrastructure capabilities for Environment and Natural Resource Management right? Are there any missing or additional needed?

Question 19: Are there any international research infrastructure collaborations or emerging projects that Australia should engage in over the next ten years and beyond?

Question 20: Is there anything else that needs to be included or considered in the 2016 Roadmap for the Environment and Natural Resource Management capability area?

Advanced Physics, Chemistry, Mathematics and Materials

Question 21: Are the identified emerging directions and research infrastructure capabilities for Advanced Physics, Chemistry, Mathematics and Materials right? Are there any missing or additional needed?

Question 22: Are there any international research infrastructure collaborations or emerging projects that Australia should engage in over the next ten years and beyond?

Question 23: Is there anything else that needs to be included or considered in the 2016 Roadmap for the Advanced Physics, Chemistry, Mathematics and Materials capability area?

Understanding Cultures and Communities

Question 24: Are the identified emerging directions and research infrastructure capabilities for Understanding Cultures and Communities right? Are there any missing or additional needed?

Question 25: Are there any international research infrastructure collaborations or emerging projects that Australia should engage in over the next ten years and beyond?

Question 26: Is there anything else that needs to be included or considered in the 2016 Roadmap for the Understanding Cultures and Communities capability area?

National Security

Question 27: Are the identified emerging directions and research infrastructure capabilities for National Security right? Are there any missing or additional needed?

Question 28: Are there any international research infrastructure collaborations or emerging projects that Australia should engage in over the next ten years and beyond?

Question 29: Is there anything else that needs to be included or considered in the 2016 Roadmap for the National Security capability area?

Underpinning Research Infrastructure

Question 30: Are the identified emerging directions and research infrastructure capabilities for Underpinning Research Infrastructure right? Are there any missing or additional needed?

Question 31: Are there any international research infrastructure collaborations or emerging projects that Australia should engage in over the next ten years and beyond?

Question 32: Is there anything else that needs to be included or considered in the 2016 Roadmap for the Underpinning Research Infrastructure capability area?

Data for Research and Discoverability

Question 33: Are the identified emerging directions and research infrastructure capabilities for Data for Research and Discoverability right? Are there any missing or additional needed?

Question 34: Are there any international research infrastructure collaborations or emerging projects that Australia should engage in over the next ten years and beyond?

Question 35: Is there anything else that needs to be included or considered in the 2016 Roadmap for the Data for Research and Discoverability capability area?

Other comments

If you believe that there are issues not addressed in this Issues Paper or the associated questions, please provide your comments under this heading noting the overall 20 page limit of submissions.

In the Australian setting government funded infrastructure is disproportionately important compared to other nations. With the Australian industry mix being dominated by SMEs it is in many cases only the government that has the capacity to invest in such infrastructure; therefore ways for it to be more accessible to industry/commercial partners is vital.

Australia's achievements in research excellence stand unchallenged, however it is translation, as many have noted, that lacks. We note that translation must equate to the creation of long term sustainable economic activity; not off shore divestment. To make that a reality then consideration is required in the development of second-tier infrastructure; rapid prototype development, manufacturing process development, facilities where industry and academic staff can work side by side. In title such facilities do exist today but it has been our general experience that the practicality in terms of real word experience, and timeliness, in terms of achieving best practice response times, is lacking.