

2016 National Research Infrastructure Roadmap Capability Issues Paper Questions

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Preamble

As a member of the AAF, NeCTAR and RDS Boards, and in my role as facilitating the joint discussions between the Directors of ANDS, NeCTAR and RDS on behalf of their governing entities I have had significant opportunity to provide input to their respective responses to the issues paper. This submission provides some additional feedback from the perspective of someone that sits across these four projects, as a former NCRIS Project Director, CEO of CAUDIT and board member of EDUCAUSE. It is important to note that I do not purport to represent any of the aforementioned projects through this submission.

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

No additional comments.

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

The governance characteristics noted in the paper are important, but a number of additional factors should be considered if NCRIS is to achieve optimal governance. These include:

Governance Frameworks

Governance within NCRIS could be significantly strengthened by providing capabilities with a best practice framework for governance. The development of such a framework would only require a relatively modest initial investment and could draw on some of the excellent material that is already available through the Australian Institute of Company Directors (AICD) for example. This framework would need updating over the course of a 10 year investment term - perhaps 2-3 times although it is likely that any such updates would be fairly minor in terms of the investment required.

The framework should not dictate any governance model (although it could provide some examples for guidance), but describe some of the key attributes that any governance model should have as well as guidance on establishing robust and transparent processes in support of whatever governance model that is chosen. This framework might for example include:

- Model Terms of Reference for boards and sub committees, including but not limited to:
 - Selection methods for members and chairs;
 - Recommended mix of skills and knowledge across the board members;
 - Definition of recommended periods of appointment for members and chairs and how many terms they may serve;
 - Routine and/or casual vacancies.

- Model roles and responsibilities statements for members serving of boards and sub committees;
- Background material on governance versus management;
- Guides on what are the responsibilities of board members;
- Model processes that can be used to support boards and sub committees, including but not limited to:
 - Processes and procedures for decision making;
 - Processes for changing the composition of a board;
 - Processes for dealing with conflict of interest;
 - Processes for dealing with non attendance or participation;
 - Processes for winding up a capability.

Governance Skills

Governance is not always a core skill or area of expertise for individuals that agree to serve on a board or similar governing entity for an NCRIS capability. They may be appointed on the basis of their domain knowledge or because they represent a stakeholder group that is important to the capability. A conscious programme that uplifts the governance skills and knowledge would significantly strengthen the governance of NCRIS capabilities. This could for example take the form of a requirement that any member appointed to an NCRIS capability governing entity being required to undertake (at the expense of the capability) a course like the AICD Company Directors Course or similar within the first 6 months of being appointed. Whilst such courses are primarily aimed at Directors of “for profit” companies they are still highly relevant and the AICD does offer “not for profit” versions of the course which are more aligned with the governance of NCRIS capabilities.

Governance versus Management

Well established best practice for governance points to the importance of a clear separation between Governance and Management. Many case studies available from AICD and used within various MBA programmes highlight how a blurring of the lines between Governance and Management has been a contributing factor in the failure of a governance entity. For anyone that is a member of a governance entity, a principle of “eyes peeled – fingers out” should apply.

Within the NCRIS environment there is evidence to suggest that there is a blurring of the lines between governance and management and in some cases this has been a contributing factor to sub optimal governance arrangements. Developing a best practice governance framework and implementing a requirement for members of NCRIS governing entities to attend a company directors course or similar will go some way to raising the awareness of this issue and therefore improving governance.

Independence of Governing Entities

Maintaining the independence (real or perceived) of a governing entity is essential for good governance and maintaining the trust of other NCRIS capabilities and researchers. In some cases lead agents of NCRIS capabilities can exercise significant influence over the appointment of the chair of the governing entity and the director etc. Whilst this is often driven by the right intentions and on balance results in good appointments, it does result in lead agents being open to negative perceptions which undermines the perceived independence of the governing entity. Further, the governing entities of some NCRIS capabilities are effectively advisory bodies, with the lead agent exercising ultimate control. This has at times resulted in misalignments between the intentions of

the governing entity, project directors and lead agents further fuelling perceptions of bias or perceptions that the capability is not necessarily acting in the national interest.

One strategy that could strengthen the governance of NCRIS capabilities is to enable a greater level of independence of governing entities by empowering the governing entity to elect the board chair for example. It's a common approach used by the corporate sector and EDUCAUSE has demonstrated that this strategy works in a higher education context. Because any member of the governing entity could conceivably be elected as the Chair, much greater attention is paid to ensuring that all members of the governing entity are of a very high calibre which in turn increases the quality of governance. Under such an arrangement lead agents should of course be entitled to a guaranteed level representation on the governance entity and the terms of reference of the governing entity should preclude it from compelling a lead agent to act in an unlawful manner or in a manner which is contrary to its internal policies etc.

Likewise NCRIS capabilities might consider adopting an approach where the governing entity appoints the Director of the project – typically one of the roles of governing entities and in line with practice in the corporate sector.

Evolution of Governance

One of the lessons from the previous NCRIS and super science investments is that governance needs to evolve over the course of time. If we consider a 10 year investment window, it is unlikely that the governance arrangements for a capability established on day one will represent the optimal governance arrangements some 10 years later. Indeed this will be particularly acute for the Data for Research and Discoverability investment as technology will continue to act as a significant and ongoing disruptive force that might necessitate a change in makeup or approach to governance.

Further, an entity (such as a University) that chooses to play a role in a capability (and therefore is part of the governing entity) at the beginning of a 10 year investment period might for example decide after 5 years that it is no longer desirable to continue to be involved. This might be the lead agent or key partner for the capability. Other entities who were not active or interested during the establishment phase of a capability might have an interest at a later point in becoming involved or taking a lead role.

It is essential that the governance models of capabilities contemplate and accommodate the possibility that lead agents and key partners may come and go over the course of an NCRIS investment that spans a 10 year period or beyond.

Mainstreaming of services

In addition to taking a strategic approach to whole-of-life costs including defunding or decommissioning it is also important that the mainstreaming of services is considered. Specifically services which have been developed by NCRIS that have become everyday services that the broader community relies upon, but are no longer able to be funded under NCRIS will need to be transferred in an orderly manner to other entities such as facilities, service providers and institutions.

System Wide Coherence

Any future governance arrangements must address the question of system wide coherence to address duplication, gaps and alignment of the activities of NCRIS capabilities where it makes sense. Focusing on the Data for Research and Discoverability investment, one proxy which will help drive

coherence is the definition of technical standards that facilitate interoperability of research infrastructure. The NeCTAR Research Cloud is an excellent example of where such an approach has driven system wide coherence and this should be used to inform future coherence strategies. This might include a national committee with representation from NCRIS capabilities that can set standards for interoperability which are binding.

At a broader level there needs to be alignment of the strategic and business plans of a Data for Research and Discoverability investment with the plans of other NCRIS capabilities. Refer to Other Comments for related commentary on system wide coherence.

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

No additional comments.

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

No additional comments.

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

No additional comments.

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

No additional comments.

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

No additional comments.

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

No additional comments.

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

No additional comments.

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

No additional comments.

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

No additional comments.

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

No additional comments.

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?

No additional comments.

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

No additional comments.

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?

No additional comments.

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

No additional comments.

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?

No additional comments.

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?

No additional comments.

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

No additional comments.

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?

No additional comments.

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?

No additional comments.

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

No additional comments.

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?

No additional comments.

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?

No additional comments.

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

No additional comments.

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?

No additional comments.

National Security

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

No additional comments.

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

No additional comments.

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

No additional comments.

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?

No additional comments.

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

No additional comments.

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

No additional comments.

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?

The “existing capability elements” and “existing infrastructure” table represents a picture that incorporates the existing ANDS, NeCTAR and RDS projects. It does not include other high performance compute and data investments which arguably should be considered an important element of a national data system. Further, as a result of the various NCRIS and super science investments over the last 10 years, a number of domain capabilities and research communities are now in a position where they have a much better understanding of their data needs and can clearly articulate them. Indeed some of these capabilities have built data infrastructure that could also be considered part of a national data system. Likewise investments by institutions in infrastructure that supports data for research and discoverability should be considered, particularly noting that they will in all likelihood dwarf any NCRIS investment in Data for Research and Discoverability.

The emerging trends and examples of potential new infrastructure as articulated in the issues paper is therefore too narrow in their view point of integrating just the existing three investments. The data for research and discoverability investment would be better informed and better positioned to serve both the NCRIS and broader community if the roadmap undertakes further consultation with the high performance compute, domain capabilities and institutions.

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

No additional comments.

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?

No additional comments.

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.

System Wide Collaboration

Within the existing NCRIS capabilities and projects there has been a tremendous amount of collaboration which has demonstrated its power and benefit. This is not surprising given that it is a core principle of NCRIS. From a system wide perspective however, this spirit of collaboration has not necessarily translated into effective system wide collaboration.

Collaboration within a data for research and discoverability investment, between it and delivery partners, institutions and other NCRIS capabilities will be essential for a successful future NCRIS investment. Yet collaboration is not a natural mode of behaviour in any national ecosystem where there are multiple governing entities each with their own goals and objectives.

Mandating collaboration as suggested by some via a contractual instrument is unlikely to be successful – it is difficult to codify collaboration using contractual instruments and any such attempt will ultimately constrain the manner in which collaboration will happen. Defining outcomes and benefits across NCRIS capabilities in such a way that they can't be achieved without collaboration is

one possible strategy however this is fraught with potential problems as it relies on coherent system wide planning. It would also be possible to mandate that a set percentage of funds received must be spent on collaborative activities. Again this is relatively blunt and arbitrary contractual instrument which is likely to have mixed results.

Collaboration needs to be fostered, it needs to be nurtured and it needs to be supported. Individuals working within the NCRIS environment, particularly at the coal face have a strong desire to share ideas and work together, but are too busy to effectively collaborate. Drawing on the experiences of CAUDIT and EDUCAUSE who have facilitated collaboration at a national level for many years, a successful strategy is to provide a level of system wide resourcing that is focused on facilitating collaboration.

This enables those that want to collaborate to get on with the job of collaborating rather than wasting time and energy facilitating and supporting collaboration. This could be achieved by resourcing a cadre of people who work across the NCRIS system. They would become well connected across a broad community, they would help individuals connect with their peers, they would have a deep understanding of what activities are happening across the system and be able to nurture opportunities for cross capability collaboration in a purposeful manner.

Such a cadre of individuals working on behalf of all of the NCRIS capabilities is likely to be the most effective means of facilitating cross capability collaboration. Again drawing on the experience of CAUDIT and EDUCAUSE, such individuals would have no direct authority over any one capability, but rather would take a bottom up approach and use their influence to drive cross capability collaboration.

Such an approach also speaks to the question of system wide coherence. Nurturing and fostering cross capability collaboration from the bottom up in an organic manner will undoubtedly have a positive influence on system wide coherence. Both CAUDIT and EDUCAUSE have proven this.

In terms of how to resource a cadre of individuals working across the NCRIS system, one possible strategy might be to top slice the necessary resources from the NCRIS budget. Alternatively funding could be sought on a proportional basis from some or all of the NCRIS capabilities. An appropriate level of governance and leadership of such a group would need to be established and must be broadly representative of the NCRIS community.