

Name of Submitter: Australian Academic and Research Network (AARNet) Pty Ltd

AARNet Response to the Draft 2016 National Research Infrastructure Roadmap

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1 Executive Summary

AARNet commends the work that the expert working group has done to bring together the draft 2016 National Research Infrastructure Roadmapⁱ.

Our detailed observations and comments are below, and are summarised as follows:

1. AARNet strongly supports the bringing together of the Digital Data and eResearch platforms
RATIONALE: These are inextricably coupled, and it is vital at this stage of development of Research Infrastructure that there be coherence among all its eResearch elements.

AARNet is very strongly of the view that AARNet, the AAF, and NCI/Pawsey must be explicitly and formally engaged in the definition, subsequent deployment and operation of the Australian Research Data Cloud (in addition to ANDS, RDS and NeCTAR)

RATIONALE: The Australian Research Data Cloud needs to be more clearly defined. Its success will need to leverage all the existing national e-Infrastructure service providers, associated compute, storage, network, identity and software platforms, and expertise within the sector.

2. The Advanced Research Network priorities are correctly identified
RATIONALE: National extension and international expansion of AARNet will reduce the operational costs and increase the data-driven research impact of connected facilities, instruments, campuses and regions.
3. The level of detail provided for each of the priority areas varies greatly, and particularly between focus areas
RATIONALE: Less well articulated priority areas are less likely to deliver timely outcomes.
4. Cybersecurity has been removed and needs to be added back
RATIONALE: The need for research signaled in Australia's Cyber Security Strategy should not be ignored.



2 Comments

2.1 Digital Data and eResearch platforms

AARNet strongly supports the bringing together of the Digital Data and eResearch platforms, which had been separated in the capabilities issues discussion paperⁱⁱ. It is vital at this stage of development of Research Infrastructure that there be coherence among all its eResearch elements.

AARNet is very strongly of the opinion that the “Create Australian Research Data Cloud” priority area within the Digital Data and eResearch platforms focus area requires significant further definition. Moreover, there are several stakeholders that are critical to the success of this priority that must be explicitly and formally engaged in the definition, subsequent deployment and operation of the services the Australian Research Data Cloud will provide. At a minimum, these stakeholders are AARNet, the AAF, the Pawsey and NCI facilities, and representatives of Australia’s research institutions, and these should be identified as being critically important players in the roadmap in addition to ANDS, RDS and NECTAR.

2.2 Australian Research Education Network

To more accurately describe the role the AREN plays, AARNet recommends the following minor rewording of the sentence:

It provides high-speed, low latency, high-quality broadband infrastructure between instruments, facilities, campuses and institutions, and globally through the National Research and Education Network (NREN). (p. 25)

As follows:

It provides high-speed, low latency, high-quality broadband infrastructure between instruments, facilities, campuses and institutions, **both nationally, and internationally through interconnections with other National Research and Education Networks (NRENs).**

The key priorities under the Advanced Research Network heading (p. 27) are appropriate and align to many of the discipline-specific priority areas. National extension and international expansion of AARNet will reduce the operational costs and increase the data-driven research impact of connected facilities, instruments, campuses and regions. It will also directly facilitate (at least) the following priority areas:

- Tier 1 HPC (2.1)
- Create Australian Research Data Cloud (2.1)
- Integrated and coordinated HASS platform (2.2)
- Harmonised platforms for Indigenous research (2.2)
- Harmonised platforms for social science research (2.2)
- Astronomy Infrastructure (2.5)
- International accelerator programs and instruments (2.5)
- Environmental prediction system (2.6)
- Inward focused Earth monitoring and exploration (2.6)



- Remotely sensed Earth observations (2.6)
- Agricultural integrated networks (2.6)
- National network for containment and prevention of endemic and exotic human and animal diseases (2.7)
- Network the national, state, and territory biosecurity testing facilities (2.7)
- Network to drive translation of omics data (2.8)
- Networked biobanks (2.8)
- Integration of existing and emerging large-scale population, tissue, microbial and genomics datasets (2.9)

This highlights the interdependency of many of the priority areas, particularly those from within the Digital Data and eResearch platforms focus area, which will require strong strategic collaboration throughout the roadmap’s facilitation and implementation.

2.3 Consistency

The level of detail described in the “what we need” and the priority areas for each of the focus areas varies considerably. One of the learnings from the NCRIS investments made to date is that programs with a specific purpose/objective and a well understood mechanism or methodology to achieve that objective have proven to be more successful more quickly than those with a less clear purpose and/or implementation strategy. Further, it is noted that the priority areas are grouped (as per Table 1, p. 22) and that “Context for the groupings and the implementation pathways are outlined in Chapter 3 Implementing the 2016 Roadmap” (p. 22) but the context and pathways do not appear in this chapter. This is a significant oversight as the planning and facilitation for priority areas within each groupⁱⁱⁱ will be very different, and will be likely to require more effort and broader stakeholder engagement depending on where they sit on the “continuum” from “Explore establishing ...” through to “Enhance Capability ...”. This is particularly the case for the priority areas for the Platforms for Humanities, Arts and Social Sciences focus area which are somewhat less specific than those for other focus areas.

2.4 Cybersecurity

AARNet notes that cybersecurity is not highlighted as a research focus area, is not identified or associated with any focus or priority area, or given much prominence in the draft roadmap. This is despite cybersecurity being prominent in the capabilities issues discussion paper, and its identification as a national science and research priority. The numerous references^{iv} in the draft roadmap reflect the critical importance of digital (cyber) platforms. The integration of cybersecurity best practices within these platforms is increasingly important for enabling all research.

Significantly, the Australian government’s Cyber Security Strategy^v makes five recommendations, four of which specifically cite the importance of engagement with the research sector:

- A National Cyber Partnership
- Strong Cyber Defences
- Growth and Innovation
- A Cyber Smart Nation



AARNet recommends that cybersecurity research be identified as a focus area within the research infrastructure roadmap.

i

https://docs.education.gov.au/system/files/doc/other/draft_2016_national_research_infrastructure_roadmap_2.pdf

ii

https://docs.education.gov.au/system/files/doc/other/2016_national_research_infrastructure_capability_issu_es_paper.pdf

iii “Explore establishing ...”, “Explore integrating ...”, “Maintain priority ...”, and “Enhance capability ...”

iv For example, Table 2 (p. 22) indicates Digital Data and eResearch are aligned to all research priorities, and “All areas of research are increasingly dependent on data and eResearch infrastructure” (p. 6).

v <https://cybersecuritystrategy.dpmc.gov.au/assets/img/PMC-Cyber-Strategy.pdf>

