Submission: Australian Universities Accord Discussion Paper

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11/04/2023

The Australian Research Data Commons (ARDC) thanks the Universities Accord Panel for the opportunity to respond to the *Universities Accord Discussion Paper*.[1] This submission will provide general comments before addressing select questions from the Discussion Paper.

About ARDC

The ARDC drives the development of national digital research infrastructure that provides Australian researchers with a competitive advantage through data. The ARDC is Australia's peak body for research data. We aim to accelerate research and innovation by driving excellence in the creation, analysis and retention of high-quality data assets. We facilitate access to national digital research infrastructure, platforms, skills, data sets and tools from academia, industry and government for all Australian researchers.

The ARDC is funded through the Australian Government's National Collaborative Research Infrastructure Strategy (NCRIS) to support national digital research infrastructure for Australian researchers.

General Comments

Australian governments require through various policies that Australian universities conduct research and that they will have highly capable data and digital systems to support this effort.[2]

For example, the new Data and Transparency Act (DATA) Scheme imposes a range of requirements on universities that they must first meet before gaining access to public sector data.[3] The *Australian Data Strategy*, the *Digital Economy Strategy* and the *University Research Commercialisation Action Plan* all expect university research systems to interoperate with other sectors and globally.

While these requirements are reasonable, it is hard to conceive the best outcomes will be achieved by primarily moving only one piece of the puzzle - Australian Universities.

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[1] Australian Universities Accord Panel Discussion Paper Consultation

[2] Under the Higher Education Standards Framework (Threshold Standards) 2021, '(t)he undertaking of research that leads to new knowledge and original creative endeavour and research training are fundamental to the status of a higher education provider as an 'Australian University'.Higher Education Standards Framework (Threshold Standards) 2021, sB1.3.

[3] Introducing the DATA Scheme | Office of the National Data Commissioner

Ideally, this Universities Accord will have a role in coordinating how the data and digital research infrastructure interoperates nationally and across sectors. Similar to the Prices and Income Accord, there must be an explicit agreement from all sectors about how the systems of each (that have their own logic and motivations) will work together coherently to serve the needs of Australians.

Achieving this will be critical for any future knowledge economy, where there is improved creation of knowledge that can flow more seamlessly to the people that need it, and who can then provide feedback to the research function on its relevance and effectiveness.

Discussion Paper Questions

Delivering new knowledge, innovation and capability

Question 23: How should an Accord help Australia increase collaboration between industry, government and universities to solve big challenges?

The Australian research system consists of many parts; universities are just one segment. Other parts include government, industry and not-for-profit research. As well as being split across sectors, the research system is also split across jurisdictions and with counterparts overseas.

If the Accord is to have an effect on cross-sector collaboration, it must address the motivations of the various parts, such as through improved coherence of policy, funding and infrastructure. The aim would be to make a 'smart' national research system allowing Australia to contribute disproportionately.

As an example, while university researchers are encouraged to make data FAIR - Findable, Accessible, Interoperable and Reusable[4] - this should be extended to government and industry researchers, particularly when they are in receipt of public funds. This should be regardless of the source of funding. It could be through an ARC or NHMRC grant, a grant by a state or territory government or through some other publicly funded research scheme for industry. This effort alone would align us more closely with the vision described in (and agreed to by Australia) the *Recommendation of the OECD Council concerning Access to Research Data from Public Funding*.[5]

If this example were extended across other elements of Australia's research efforts the gains would be significant. For example, a recent cost-benefit analysis revealed using persistent identifiers across the research sector could save $24 million per year and 38,000 person days in wasted effort every year.[6]

[4] FAIR Data | ARDC
[5] Recommendation of the OECD Council concerning Access to Research Data from Public Funding
[6] Strategic Investment in Identifiers Could Save $24 Million and 38,000 Person Days per Year | ARDC

Question 25: How should Australia leverage its research capacity overall and use it more effectively to develop new capabilities and solve wicked problems?

The ARDC provided a submission to the Australian Research Council (ARC) Act Review, arguing it should:

- Consider use of a range of instruments necessary to achieve greater consistency in administrative practices across all publicly funded research grants nationally.
- Allow the making of rules or guidelines that mandate broad use of global unique persistent identifiers for publicly funded research nationally.
- Allow a broader definition of research outputs for use in grant and research evaluation for all Fields of Research in line with international trends and best practice.
- Ensure research reporting requirements leverage national data infrastructure and make sophisticated data available to stakeholders for a broad range of purposes.

The proposed Accord should support the future work of the ARC by aligning other parts of the economy and society with the recommendations outlined above.

Question 27: How can we improve research training in Australia including improving pathways for researchers to gain experience and develop high-impact careers in government and industry?

To ensure Australia's researchers remain globally competitive, the ARDC is leading the development of a national digital research skills agenda, in collaboration with training organisations, universities, research institutions, national research infrastructure facilities, government and peak bodies. Based on the outcomes of our consultations, we have developed a Digital Research Capabilities and Skills Framework.[7]

The framework identifies the essential knowledge, skills, abilities and experience levels needed to work effectively in digital research, and the organisations currently best placed to provide the skills training. In this regard, Australian universities play a vital role in practical skills development that will inevitably have spillover effects, first to researchers in industry and government and then more broadly to those sectors.

In addition to the training of researchers, the Accord should consider the need to train and maintain the research infrastructure workforce that will also be necessary across academia, government and industry.

In effect, these are the workers required to provide all of the enabling elements critical for the creation and maintenance of sophisticated, world-class, national scale research 'labs' in which researchers work.

More details are available from the recent 'NCRIS Research Infrastructure Specialist Position Paper'.[8] Note that the Accord would look at issues relating to this enabling workforce more broadly than NCRIS.

[7] A Framework for Australia's Digital Research Skills | ARDC
[8] Research Infrastructure Specialist Position Paper

Quality and Sustainability

Question 42: What settings are needed to ensure academic integrity, and how can new technologies and innovative assessment practices be leveraged to improve academic integrity?

Many concerns around new technologies and techniques arise because they are increasingly complex, requiring time and multiple experts to fully appreciate the various implications across different contexts. Ultimately, it is not sufficient for technology to just be clever or useful, it must also be explainable and understandable to those funding its use, relying on its results and regulating its impact.

In terms of data and digital research capabilities, this means we must know where research data has come from, how it has been transformed, the processes applied and the link with research outputs.

By having this knowledge about how research is created, we can have increased confidence in its integrity, particularly if different components are authenticated independently by multiple trust anchors. An obvious example is the use of multiple proofs to confirm the identity of a researcher, but the principle can be applied similarly to every research object represented digitally - institutions, software, journals.

The challenge for the Accord is how to bring multiple parts of the system together in a way that trust in research can be maintained and improved at a time when new ways of working are challenging the capacity of current safeguard mechanisms.

For this to occur, the Accord will have to encourage multiple parties to adopt new approaches and techniques necessary to support an evolving trust architecture: industry will have to prove that proprietary systems work as expected while protecting commercial sensitivities, governments will have to provide funds and implement policies promoting the emergence of a multitude of trust services.

A key word in the paragraph above is ‘encourage’. The necessary encouragement will likely involve a mix of legislation, policy, education, and inevitably, funding. The Accord must provide the authorising environment in which trust is defined as a key objective and provide a strategy for its achievement.

Investment and Affordability

Question 45: How should the contribution of different institutions and providers to key national objectives specific to their location, specialist expertise or community focus be appropriately financed?

Australian universities play a critical role in provisioning different skills and resources that collectively represent national research infrastructure. This is also how much of the Global Research Infrastructure emerges outside of large multinational projects that have dedicated funding.

This contribution of time and resources extends beyond the life of funded research projects and block grants. Universities are expected to make the data, software and other outputs from each project

available to other researchers, government, industry and the public at little or no additional cost. In effect, institutions that host successful research projects also inherit the responsibility for maintaining all of the research outputs indefinitely as a public good. These ongoing costs are not fully covered presently and as data and digital requirements grow, the 'infrastructure' component is taking an increasing share.

While universities have an interest in maintaining access to this material for their own future research, the Accord needs to address the growing gap between the data and digital infrastructure necessary to conduct research and the ongoing costs of these legacy services that others expect as a public good.

Should you wish to discuss these or other matters, please contact Dr Adrian Burton, Director Data Policy & Publication Services (adrian.burton@ardc.edu.au) or Mr Shannon Callaghan, Senior Data Policy Adviser (shannon.callaghan@ardc.edu.au).