

# ARDC Institutional Underpinnings Framework Introduction

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## EXECUTIVE SUMMARY

Institutional Underpinnings is part of the ARDC's National Data Assets Initiative. In this program, 25 Australian universities are collaboratively developing a national Institutional Research Data Management (RDM) Framework. This Framework is intended to inform institutions' design of policy, procedures, infrastructure and services, and improve coordination of RDM within and between institutions. We now seek feedback from the sector on the comprehensiveness of this mid-program draft release of the Framework, which will be considered when producing the final version of the Framework.

In the first phase of the program, working groups developed recommendations and calls to action for eight elements essential to RDM. The working groups recognised the overlap and often crucial interaction between the eight essential elements. The eight Elements are provided as separate documents and are described briefly below.

[Active Research Data Management](#) addresses institutional approaches to providing the infrastructure for management of research data during the life of the research project for the purposes of conducting that project. Institutions have a responsibility under the [The Australian Code for the Responsible Conduct of](#)

[Research](#) to provide access to infrastructure for researchers to use throughout Active RDM. This section of the Framework deals specifically with selection of Active RDM infrastructure by an institution. Because Active RDM takes place during the life of the research project, this aspect of RDM has a large impact on a researcher's ability to conduct their research. Effective Active RDM solutions reduce the burden on researchers' workload and prevent them from turning to non-endorsed solutions that reduce institutional oversight and expose both institution and researcher to risk.

[Culture Change](#) is the shifting of RDM practices within an institution towards more effective RDM. This section of the Framework includes both approaches to changing institutional staff attitudes and practices, and changing the institutional processes, guidance and incentive structures that motivate and support these attitudes and practices. Culture change must be actively considered when improving institutional RDM to ensure that the goals that have been identified by the institution are translated into practice.

[Policy](#) lays out the principles that govern the institution's approach to RDM. Effective RDM policy gives an institution a structured approach to meeting its regulatory requirements and ensuring that the required roles, responsibilities, processes and procedures are in place for effective RDM.

[Research Data Management Planning](#) addresses institutional considerations in supporting the forward planning of the management of data emerging from a research project. This planning is typically undertaken by the researcher with the support of the institution, which may supply tools to guide the researcher through the planning process. RDM Planning may be documented by the researcher in a data management plan (DMP). RDM Planning ensures that researchers carefully consider the management of their research data, leading to better RDM practice within an institution. As they take the researcher through the planning process, institutions can introduce researchers to institutional infrastructure and processes. DMPs help with institutional oversight of research data, and can be used to inform the provision of RDM infrastructure and services.

[Retention and Disposal](#) refers to the decisions about what to do with data at the end of a research project. Institutions are responsible for large quantities of research data, and retain this data to meet their regulatory requirements, to back up the integrity of their research, and as a valuable asset in its own right. However, not all data can be retained indefinitely, so institutions must have systems in place to allow for the appropriate disposal of data. Good policy, systems and procedures for the retention and disposal of research data become increasingly important for institutions as the cost of storing ever-increasing quantities of data rises.

[Open Research and Data Publication](#) The research sector is moving towards a more open model, where the data underlying research is made available in aid of research integrity, reproducibility, collaboration,

and innovation. Research funders and publishers are increasingly requiring that research data be made open. By enabling open research and data publication, institutions help researchers to meet these requirements and improve the visibility and impact of their research.

[Sensitive Data](#) is data that presents a risk to persons, groups, the environment or society at large if it is disclosed or mishandled. Special protections are required when managing sensitive research data within an institution. Institutions must therefore account for data sensitivity when putting in place RDM infrastructure and procedures. Ensuring that sensitive data is managed appropriately protects institutions from legal and reputational risk.

[Support, Training and Guidance](#) addresses institutional approaches to providing researchers with the essential knowledge to manage data effectively. Effective support, training and guidance enables researchers to effectively use the services and infrastructure provided by an institution, provides research efficiencies, and improves RDM practice across the institution.

A further eight elements were identified by the program group: Cybersecurity, Data Ownership, Digital Preservation, Funding and Sustainability, Governance, Identifiers and Metadata, Non-Digital Material and Standards and Guidelines. These elements were considered to be priority areas for universities, but were not an immediate focus of the working groups. Considerations for these elements raised by the project group are summarised in the [Remaining Elements](#) section.

## BACKGROUND

The [Australian Research Data Commons](#) (ARDC) is a [National Collaborative Research Infrastructure Strategy](#) (NCRIS) facility, providing Australian researchers with a competitive advantage through data. This Institutional Underpinnings program is part of the ARDC's larger [National Data Assets initiative](#). Through strategic partnerships between the ARDC and key stakeholders, projects in this initiative will develop national scale data assets that support leading edge research. National data assets are created and maintained through cross-organisational collaboration, and require long-term custodians. The Institutional Underpinnings program focuses on universities as major producers and custodians of Australian research data. The Framework was therefore developed by universities with their needs in mind. Other research institutions may benefit from the guidance provided by the Framework, but given the differences in structure and drivers between universities and these other research institutions, not all of the advice may be directly applicable. The program aims to foster a more cohesive, collaborative approach to RDM across Australia's universities and research institutions more generally, and to support an overall uplift in their RDM capability.

RDM is a complex challenge for institutions, requiring the coordinated effort of multiple stakeholders within the organisation. This challenge is becoming more pressing as the quantity of research data generated within institutions increases and the sector moves towards increasingly open research practices, with a focus on data availability for both integrity assurance and reuse. Institutions are also facing financial pressure to improve the efficiency of their RDM, because storage costs are no longer decreasing fast enough to allow all research data to be stored indefinitely. The Institutional Underpinnings program aims to help institutions to face these challenges by developing a coordinated approach so that they can pool efforts and learn from one another's experiences, rather than each attempting to develop their own solutions in parallel.

Australia's universities are seizing the emerging opportunity for data management at the enterprise level to support research efficiency, integrity, excellence and innovation. The Institutional Underpinnings program allows the institutions to pool resources and define their own priorities and roles in contemporary data enabled research.

## THE FRAMEWORK

The program will result in the co-development of a Framework that outlines those elements required for effective institutional RDM, including policy, procedure, services and infrastructure. The Framework is intended to inform institutions' design of policy, procedures, infrastructure and services, and improve coordination of RDM within and between institutions.

The Institutional Underpinnings Framework is intended specifically for the use of Australian universities. The Framework provides an institutional-level perspective, and is aimed at supporting decision-makers and service-providers. Researchers produce and manage research data within institutions, and rely on institutions for support and services. While the Framework is intended to benefit researchers, it is not intended to provide advice or guidance directly to the researcher, but rather to assist institutions in supporting their researchers.

## OUR APPROACH

This program presents an unprecedented opportunity to approach the challenges of RDM with a large group of Australia's research institutions. We are taking a co-design approach, in which the group collectively determines the structure and content of the Framework based on their shared priorities. This co-design process is iterative, with multiple opportunities for feedback and revision by key stakeholders across all participating universities, as well as broader sector input.

In our approach, we acknowledged that RDM is a large and complex challenge to which no one institution has the perfect solution. Given the limits of this project, it would be impossible to produce a comprehensive and complete RDM framework that perfectly served all of Australia's institutions. Additionally, RDM sees constant change with advances in technology, regulations and agreed best practice. For these reasons, we maintained a strong focus on how we could produce the most shared value for institutions in the face of their current challenges.

To make the most of the opportunity for collaboration, we focused our efforts on areas where the majority of institutions could benefit from drawing lessons from others who are leading in the sector, and also areas where collective work is required for progress. The latter might occur either because a problem is so challenging that combined effort is needed, or because the solution requires agreement between institutions (for instance, to facilitate cross-institutional research collaboration). We also aimed to highlight those places where agreement is difficult and where shared solutions are needed but currently do not exist.

Institutions have different resources and needs based on their scale and the maturity of their RDM capability. For this reason, it is important that the Framework be technology-agnostic rather than prescriptive. Our approach is therefore to provide the principles that underlie successful solutions to problems, with examples that show how these are approached by particular institutions in practice.

## THE PROCESS

All 43 of Australia's universities were directly approached to participate in the program. Thirty-four registered their interest and took part in a pre-program workshop in late 2020 that identified the universities' desired outcomes for the Framework and their participation in the program. Twenty-five of these universities applied to take part in the program, all of whom were successful.

Because RDM is complex and involves multiple parts of a university, we required that applications be made at the institutional level, with support from key stakeholders across the relevant business units at each university. During the co-design phase each university put forward a key representative to take part in discussions and decision-making, but were required to have a mechanism for internal consultation to ensure that all relevant views were represented.

Universities were also invited to nominate a member of the editorial committee, whose role is to produce the written documentation of the Framework. Editorial committee members were selected to ensure that the committee represented a range of different RDM-related roles, areas of expertise, and experience with different university scales and needs.

Work on the Framework began in 2021. Framework drafting began by collectively identifying concepts and issues in RDM that were important, challenging, and/or the subject of current work and development. The editorial committee arranged these into broad topic areas (the “elements” of the Framework), and the group collectively described these elements and identified the key considerations and challenges faced for each. This Framework outline was then reviewed by internal stakeholders across the participating universities, and was refined to produce the current list of 16 elements.

Of these 16 elements, we collectively identified 8 elements for immediate development within the program. These were elements which were currently of highest importance to the participating universities, for which the universities could nominate experts to develop those elements, and which were most likely to be tested and validated by projects that the universities were able to run in the next phase. In total, the universities nominated 95 experts to participate in working groups for these eight elements. The working groups produced recommendations and guidance for each element. They analysed the commonalities and differences in approach between universities, and the factors that drive those differences. They aimed to identify the principles that underlie successful solutions across universities, as well as collecting examples and case-studies. They also identified the gaps in current knowledge and approach, and put out calls to action where they could identify collective work that needs to be done to advance the sector. It is important to note that the content in the working group outputs may not be comprehensive - working groups focused on those parts of an element which were most important, or where they were best able to provide collective guidance.

## TESTING AND CONSULTATION

These working group outputs will be developed into the Elements of the finalised Framework. Before this can be done, we are undertaking a period of extensive testing, consultation and feedback from both the participating universities and the sector at large. Each of the participating universities have designed projects to implement, test and validate a section of the Framework in their local environment - more details of these projects can be found on the ARDC website.

We are also seeking the feedback of stakeholders who are not directly involved in the program through the present consultation process.

In the consultation process, we are seeking the feedback of the following groups:

Universities: We are particularly interested in the input of Australian universities who were not able to participate in the program. The Framework is intended to be used by all Australian universities, and we

would like to ensure that it is applicable to the experiences and needs of the universities who did not contribute directly to its development.

Other research institutes: We are interested in how the experiences of other research institutes might be able to improve the advice given in the Framework, and to what extent the Framework might be valuable to those outside of universities.

Other stakeholders: We also seek input from other stakeholders who interact with universities in the research sector, including funders, peak bodies, and national service providers. These stakeholders are likely to have a different perspective on what is needed for effective RDM. They may also be able to identify areas where greater collaboration and a more cohesive RDM approach between institutions would make it easier to work with those institutions.

Feedback on this draft release of the Framework can be submitted via [the ARDC Institutional Underpinnings webpage](#). We encourage collective submissions that represent the views of a group or organisation but individual submissions will also be accepted.

Feedback will be considered by the program participants when finalising the Framework.

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