Digital Preservation Strategy 2015-2025

Implementation roadmaps
Research Data and Records Roadmap

Purpose

The University of Melbourne is one of the largest and most productive research institutions in Australia. The University holds a significant number of valuable digital research collections, representing its rich research legacy, both past and present.

The purpose of this roadmap is to plan the implementation of The University of Melbourne’s Digital Preservation Strategy for the University’s digital research data and records. The strategy is a 2025 plan that was developed with input from the Academy, in collaboration with key University stakeholders including the Library, Melbourne Research and ITS, and in alignment with international standards and best practice (Appendix 5).

The research product preservation imperative

The University of Melbourne research strategy (Research at Melbourne, 2013) explicitly recognises the vital importance of the University’s research product including research data and records by declaring that the digital research legacy of the University must be showcased, managed and preserved into the future.

At the same time, Open Data, Open Science, and Open Access initiatives are gathering momentum globally, reflecting changing expectations of government, funding bodies and the broader community around appropriate access to research data and records.

Within this changing landscape, implementation requires immediate, coordinated action towards preserving digital research data and records in a manner that aligns with international trends and established practices (Appendix 5).

Roadmap overview

This roadmap outlines the goals and actions required to address the University’s Digital Preservation Strategy principles and objectives for research data and records.

Roadmap implementation

The three phases of the Roadmap will be iterative and require the development of individual business cases for requesting funding.

This staged approach will provide opportunities to review the progress of the Roadmap against the University’s Digital Preservation Strategy and will facilitate appropriate planning and decision-making processes within a rapidly changing digital context.

Figure 2: Relationship between the Digital Preservation Strategy and the roadmap for preserving Digital Research Data and Records.

Figure 3: Overview of roadmap phases and actions.
Research Data and Records Roadmap (continued)

Roadmap actions
The following actions have been identified for addressing each of the roadmap goals, and have been organised into three phases. These actions leverage off a range of existing activities and projects already underway at the University (Appendix 4).

Goal 1: Develop and implement a community engagement plan and training framework that articulates the transition in knowledge and skill development from research data management to digital preservation (culture)

Harnessing the University’s expertise in research data management, informatics and digital preservation to develop a community engagement plan and training framework will ensure that the University is equipped with the knowledge, skills and expertise to facilitate the preservation of its digital legacy.

<table>
<thead>
<tr>
<th>Phase 1 Establishment 2015</th>
<th>Phase 2 Implementation 2016-2019</th>
<th>Phase 3 Embedding 2020-2025</th>
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<tbody>
<tr>
<td>1.1 Establish a core Panel of Knowledge Experts in research data management, informatics and digital preservation.</td>
<td>1.4 Under the guidance of the Expert Panel, the training framework is trialled, focussing on researchers and relevant support staff with direct involvement in digital preservation tasks aligned with their needs and roles. This trial will include embedding research data management and digital preservation training into all research higher degree programs offered at the University.</td>
<td>1.5 Under the guidance of the Expert Panel, the training framework is reviewed based on the outcomes of the trial.</td>
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<td>1.2 Under the guidance of the Expert Panel, a training framework and staged implementation plan for the University will be developed, including audits and evaluation of existing training initiatives and the outcomes of the immersiveinformatics training pilot undertaken in 2013.</td>
<td>1.6 Instantiate the findings from the evaluation as a delivery mechanism for core and disciplinary training in research data management, informatics and digital preservation in a manner that is integrated with existing research support services.</td>
<td>1.7 Roll out a University-wide training program, including online delivery of core training. Under the guidance of the Expert Panel, continuously assess the impact of training and update the curriculum and training program delivery accordingly.</td>
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<td>1.3 Under the guidance of the Expert Panel, a community engagement and communication plan will be developed to socialise researchers with the Digital Preservation Strategy and the associated roadmap for research data and records.</td>
<td>1.8 Implement required changes to technical infrastructure and services to support the management and preservation of research data and records.</td>
<td>1.9 Implement a sustainable ongoing funding stream for digital research data and records management, storage and long-term preservation.</td>
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Goal 2: Implement a digital research data repository and digital archiving service underpinned by appropriate policies and standards to facilitate the management and preservation of research data and records (infrastructure)

Excellent infrastructure for digital research product management and preservation enables a visible return on investment for the researcher, The University Of Melbourne and the Academy. Excellent Infrastructure for digital research product management and preservation enables a visible return on investment for the researcher, The University Of Melbourne and the Academy. The proposed architecture comprises three distinct but interrelated repository systems: the University’s Open Access Institutional Repository (addressed in the implementation plan roadmap for research output); a research data repository; and a digital archiving service. The three repository systems act as a coherent ecosystem that is underpinned by interoperability in terms of content, policy, functionality, user experience and architecture. The repository ecosystem integrates all requirements for the management, access and preservation of digital research product (outputs, data and records).

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<td>2.1 Undertake a limited implementation of a digital research data repository for the long-term storage of research data and records.</td>
<td>2.4 Deploy the digital data repository within a sustainable ongoing funding stream.</td>
<td>2.8 Implement a digital archiving service for the University.</td>
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<td>2.2 Develop, test and implement pre-ingest workflows and procedures for archiving digital research data and records which ensure their authenticity.</td>
<td>2.5 Develop an implementation plan for a digital archiving service for the University.</td>
<td>2.9 Implement a sustainable ongoing funding stream for digital research data and records management, storage and long-term preservation.</td>
</tr>
<tr>
<td>2.3 Plan the interoperation of the Institutional Repository (IR), Data Repository (DR) and Digital Archive (DA) into an integrated repository ecosystem.</td>
<td>2.6 Implement required changes to technical infrastructure and services to support the management and preservation of research data and records.</td>
<td>2.10 Configure the repositories for continuing integration as a repository ecosystem.</td>
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</table>
**Research Data and Records Roadmap (continued)**

**Goal 3: Review and align University policies, workflows and processes related to the management and preservation of research data and records and support their implementation (policy)**

Capturing contextual information such as why and how research data and records were created and used is essential to facilitate their management, preservation and ongoing use. Relevant University workflows, processes and systems must ensure that appropriate contextual information and records are efficiently captured, maintained and accessible.

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<td>3.1 Consolidate knowledge resulting from research data consultations undertaken by Library and ITS and test with stakeholders to determine the contextual information to be captured about the research process and research product at the University so that digital preservation can be supported.</td>
<td>3.2 Review policies related to the management and digital preservation of research data and records and align with the University’s Digital Preservation Strategy.</td>
<td>3.5 Review and align all relevant University systems to support required management and preservation workflows and processes for research data and records.</td>
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<td>3.3 Re-engineer University workflows and processes to efficiently capture and utilise information about research data and records to support their management and digital preservation.</td>
<td>3.4 Develop and maintain guidance for managing digital data and records, including case-studies and good practice examples of implementing University policies and processes.</td>
<td>3.6 Embed research data management requirements in all applicable recruitment, professional development, funding, research dissemination, reporting, examination, compliance and ethics processes at the University.</td>
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**Goal 4: Consolidate and coordinate University services for supporting the management and preservation of research data and records (organisation)**

University services supporting the management and preservation of research data and records require consolidation and coordination. This effort should build on current coordination efforts and aim to make services more visible and accessible to the research community.

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<td>4.1 Review and consolidate existing University support for research data and records management and digital preservation (particularly provided by the Library and ITS) with input from the research community.</td>
<td>4.2 Align the review and consolidation activities with units responsible for the constituents of the repository ecosystem.</td>
</tr>
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<td>4.3 Implement and promote an integrated and cohesive research data and records management and digital preservation service.</td>
<td>4.4 Reinforce the integration of the repository ecosystem for the preservation of digital research product.</td>
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Figure 4: A proposed repository ecosystem for the management, access and preservation of Research Product.
Purpose
The University’s research outputs include books, journal articles, book chapters, conference papers and non-traditional research outputs, as well as higher degree theses.

In 2014 the University implemented a new Institutional Repository called Minerva Access, which is expected to play an increasingly important role in disseminating the University’s research outputs. While the Institutional Repository is focused on dissemination of research outputs, this complementary roadmap represents a plan for ensuring the preservation of those outputs by implementing the University’s Digital Preservation Strategy.

A closely related roadmap for research data and records has also been developed and will be implemented in parallel. Both digital preservation strategy implementation roadmaps are part of a 2025 plan that will ensure the preservation of the University’s digital research legacy.

The digital research output preservation imperative
As a public-spirited and research-intensive institution, The University of Melbourne aims to preserve and disseminate its digital research product including research outputs in line with the University’s research strategy (Research at Melbourne, 2013). Open Access initiatives and the changing expectations of research funders, government and the broader community are also influencing requirements for the dissemination and preservation of the University’s research outputs.

Roadmap overview
This section outlines the specific goals and actions that have been identified to address the Digital Preservation Strategy’s broad principles and objectives for research outputs.

Roadmap implementation
As with the closely related Roadmap for Research Data and Records, the two phases of this Roadmap will be undertaken iteratively, requiring individual business cases for requesting funding. This will enable progress to be regularly monitored against the University’s Digital Preservation Strategy and Roadmap for Research Data and Records.

Goal 1: Culture
Foster a culture of preservation and dissemination of digital research outputs at the University, supporting open access publication where possible.

Phase 1 Establishment and implementation 2015-2019
Phase 2 Embedding 2020-2025

1.1 Under the direction of the University’s Research Publications and Access Steering Committee, develop and implement a plan for actively supporting a culture of preservation and dissemination of research outputs at the University.

Goal 2: Infrastructure
Implement infrastructure (including expertise and systems) underpinned by appropriate policies and standards to facilitate the preservation of digital research outputs at the University.

Phase 1 Establishment and implementation 2015-2019
Phase 2 Embedding 2020-2025

2.1 Design and implement an architecture for preserving and disseminating the University’s digital research outputs, utilising the University’s planned digital archiving service and extant Institutional Repository. This architecture will ensure the capture of relationships between versions and derivatives of research outputs, as well as related entities such as people, data, projects and organisations.

2.2 Bringing together all Digital Research Product through the integration of the Digital Research Outputs and Research Data and Records systems into a mature Repository Ecosystem.
Goal 3: Policy
Review and align University policies, workflows and processes related to the management and preservation of research outputs and support their implementation.

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<td>3.1 Review and modify workflows and processes for ingesting digital research outputs into the institutional repository to facilitate preservation.</td>
<td>3.3 Re-engineer workflows and processes for ingesting, preserving and managing research outputs to align with the University’s digital archiving service.</td>
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<tr>
<td>3.2 Develop, implement and maintain a preservation plan or plans for digital research outputs held in the institutional repository.</td>
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Goal 4: Organisation
Relevant University workflows, processes and systems ensure that appropriate contextual information and records for research outputs are efficiently captured, maintained and accessible to facilitate their management, preservation and ongoing use.

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<tr>
<td>4.1 Develop and maintain guidance for the submission of research outputs to the University’s Institutional Repository to support the implementation of University policies and strategies related to digital research product preservation and dissemination.</td>
<td>N/A</td>
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Minerva Access is the Institutional Repository of The University of Melbourne

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Title:
University of Melbourne Digital Preservation Strategy 2015-2025 - Implementation Roadmaps

Date:
2014

Citation:

Persistent Link:
http://hdl.handle.net/11343/45136