

## RESEARCH DATA MANAGEMENT POLICY

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### 1. INTRODUCTION

Data and research records are an essential part of all research projects. With advances in information technology and digital science over the last decade, the wider research context has changed rapidly, the amount of data being generated has increased dramatically, and there is a need to ensure that research data is managed so as to be accessible and secure.

Concerns related to intellectual property rights, data authenticity, and ownership of data, have highlighted the need to ensure the maintenance, storage and preservation of the data on which research publications, theses, reports, patents and other forms of published material are based. These data must be stored in a secure environment, in tamper-free form (as far as possible), and with sufficient detail (as metadata). Metadata will enable all stakeholders (principal investigators, independent bodies of experts, the broader research community, funding agencies and the public) to address questions relating to accuracy and



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authenticity, and will also support the publication and re-use of the data generated from research activities.

In light of the changes referred to above, there have been developments with regard to the requirements of national and international funders, academic publishers and other related organisations, requiring research data to be managed in a systematic and transparent way. In the South African context, agencies including the National Research Foundation (NRF) require that data supporting publications be deposited in an accredited open access (OA) data repository with a registered Digital Object Identifier (DOI) for citation and referencing purposes from March 2015 onwards.<sup>1</sup>

The rationale for this policy revision is that these changes and requirements must be addressed in order to ensure the accessibility and security of the University's research data, and to ensure that it is managed in a systematic manner.

## **2. ORGANISATIONAL SCOPE**

This policy applies to all University staff, students and affiliates involved in conducting research under the auspices of the University of Pretoria.

This policy supersedes the UP Policy for the Preservation and Retention of Research Data (Rt 306/07).

## **3. PURPOSE**

The purpose of this policy is to govern the management of research data at the University of Pretoria and to ensure that all research data generated at the University of Pretoria are managed and curated effectively and efficiently in order to support the University's positioning as an international research-intensive university.

## **4. POLICY STATEMENT**

- 4.1 The data generated through research conducted at the University of Pretoria are recognised as an important asset. These data sets belong to the University (see section 5 in this policy document), unless intellectual property rights are superseded by specific terms of a funding agreement, or another agreement, or University policy.<sup>2</sup>
- 4.2 Research data must be managed in a manner that will be beneficial to researchers, the University and society as a whole<sup>3</sup>. Effective research data management will foster international research collaboration, contribute to increased research impact, enhance research practices, and improve and enhance research publication.

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<sup>1</sup> Statement on Open Access to Research Publications from the National Research Foundation (NRF)-Funded Research (2015), available at: <http://www.nrf.ac.za/media-room/news/statement-open-access-research-publications-national-research-foundation-nrf-funded>

<sup>2</sup> In accordance with the University of Pretoria Intellectual Property Policy and Contract Research and Consulting Policy.

<sup>3</sup> In accordance with the principles of Distributive Justice and Accountability of the Code of Ethics for Scholarly Activities.

- 4.3 All research conducted at the University must comply with this Policy, to ensure:
- that research data are managed, stored and preserved through their entire data lifecycle according to subject/discipline-specific standards;
  - that data management plans (DMPs) (see 2.1 in the Research Data Management Procedure) are provided when required, in accordance with funder requirements and/or faculty or departmental guidelines;
  - that data generated by means of public funding are made available in a timely and responsible manner without infringing on intellectual property, legal or ethical obligations;
  - that legal, ethical and commercial restrictions on release of certain research data (embargoed/closed data) will be considered in accordance with the Code of Ethics for Scholarly Activities, the Policy and Procedures for Responsible Research, the University of Pretoria Intellectual Property Policy, and the Protection of Personal Information Act;
  - that metadata are provided in a manner that will allow for research data to be discoverable, thereby enabling the broader researcher community to evaluate the research and allowing for the re-use of the available data;
  - that where required, published results include links or references to the supporting data;
  - that training is available to all researchers and students in support of sustainable and responsible research data management (see section 7 in the Research Data Management Procedure); and
  - the establishment of data repositories at the University for the purposes of depositing data in a secure environment for the purposes of maintenance, preservation, publication and/or re-use.
- 4.4 The management of research data will be implemented in order to:
- protect intellectual property;
  - reduce the risk that important research data may be lost or become inaccessible
  - due to changes in storage formats, damage or theft;
  - assist in the resolution of any disputes concerning the reproducibility of research results, accusations of falsification of data and all other issues in which the authenticity of data is questioned;
  - protect the rights of staff and students regarding access to data;
  - make data accessible for re-use in further research;
  - address funding bodies' and publishers' requirements for the proper management of research data as part of project or publication agreements;
  - facilitate research cooperation; and
  - ensure that data can be used as research outputs.
- 4.5 Research data sets are required to be stored for a minimum of ten (10) years after the completion of the original project but if intellectual property is involved, or if there are particular statutory or contractual requirements, a longer period may be required. In some cases, and in particular where research involving human subjects is concerned, funding bodies may require that all raw data be kept indefinitely (see Section 4 in the Research Data Management Procedure).

- 4.6 A report on the management of research data should be provided annually by faculties to the Vice-Principal: Research and Postgraduate Studies.

## 5. OWNERSHIP<sup>4</sup>

All primary research materials and data created, collected and/or generated by students, employees and affiliates of the University belong to the University and must be stored throughout the entire life cycle of a research project, in line with a project Data Management Plan.

## 6. ACCESS TO / SHARING OF RESEARCH DATA AND METADATA

Data (normally processed data; see Definitions section) and accompanying metadata will be published and managed in an institutional Research Data Management System, an accredited open data repository, or an accredited or trusted discipline-specific repository, where available (in accordance with funder and/or publisher requirements (see section 6 in the Research Data Management Procedure). In some instances, access to data should and will be embargoed or restricted due to ethical or legal reasons.

## 7. EXCEPTIONS

This policy does not cover institutional information, research administration data (which includes information on grant applications, contractual agreements, publication counts and research outputs) as governed by the Information and Governance Framework.

## 8. DEFINITIONS AND ABBREVIATIONS

<b>Data Lifecycle</b>	The process through which data flow from creation, to processing, analysis, preservation, distribution/sharing and re-use (UK Data Archive).
<b>Data Management Plan (DMP)</b>	A document outlining how the research data collected or generated, will be handled during a research project and after it is completed. Such a plan describes what data will be collected or generated, and what methodology and standards will be used, as well as whether and how these data will be shared and/or made open, and further how they will be curated and preserved (Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020, 2013).

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<sup>4</sup> Ownership and custodianship of data are governed according to the University of Pretoria Information Governance Framework Policy and supporting Matrix.

<b>Data Preservation</b>	Actions taken to ensure that a digital collection remains usable, regardless of the future changes in technology. Without the appropriate preservation methods in place, a digital collection can easily become inaccessible and useless in just a few years (JISC Guide: An introduction to digital preservation, 2014).
<b>Data Repository</b>	A central secure place, or digital warehouse, where data together with their metadata are stored and maintained. A repository can be a place where multiple databases or files are located with access through the Internet.
<b>Digital Object Identifier (DOI)</b>	A serial code used to uniquely and persistently identify digital objects.
<b>Embargoed data (closed data)</b>	Data to which access is restricted for legal, ethical, privacy and confidentiality and/or commercial purposes.
<b>Metadata</b>	Structured information about the attributes of a dataset that enables the data to be identified, retrieved and managed over time (University of Sydney RDM Policy, 2014).
<b>Open Access (OA)</b>	Open access (OA) is free, immediate, permanent, full-text, online access, for any user, web-wide, to digital scientific and scholarly material, primarily research articles published in peer-reviewed journals. OA means that any individual user, anywhere, who has access to the Internet, may link, read, download, store, print-off, use, and data-mine the digital content of that article. An OA article usually has limited copyright and licensing restrictions. Open access is consistent with both peer-review and copyright law. The legal basis for open access is the consent of the copyright owner
<b>Open Data</b>	Data that can be freely used, re-used and redistributed by anyone, subject only, at most, to the requirement to attribute and share alike (Open Data Handbook, 2015).

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<b>Research Data (RD)</b>	<p>Factual records (numerical scores, textual records, images and sounds) used as primary sources for scientific research, and that are commonly accepted in the scientific community as necessary to validate research findings. A research data set constitutes a systematic, partial representation of the subject being investigated (OECD Principles and Guidelines for Access to Research Data from Public Funding (2007)):</p> <p>Research data may include:</p> <ul style="list-style-type: none"> <li>• documents (text, Word), spreadsheets</li> <li>• questionnaires, transcripts, codebooks</li> <li>• audiotapes, videotapes</li> <li>• photographs, films</li> <li>• test responses</li> <li>• slides, artefacts, specimens, samples</li> <li>• collection of digital objects acquired and generated during the process of research</li> <li>• data files</li> <li>• database contents (video, audio, text, images)</li> <li>• models, algorithms, scripts</li> <li>• contents of an application (input, output, logfiles for analysis software, simulation software, schemas).</li> <li>• methodologies and workflows.</li> </ul>
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## 9. ASSOCIATED DOCUMENTS

This policy is aligned with the following University of Pretoria policies:

- University of Pretoria Intellectual Property Policy
- Contract Research and Consulting Policy
- Code of Ethics for Research
- Policy and Procedures for Responsible Research
- Information Governance Policy Framework
- Information Governance Matrix

This policy is aligned to the following government legislation:

- Promotion of Access to Information Act No. 2 of 2000
- Protection of Personal Information Act No. 4 of 2013.

## **10. ADDENDUM**

Research Data Management Procedure

## **11. ROLES AND RESPONSIBILITIES**

- 11.1 The Department of Research and Innovation Support (DRIS) together with the RDM team in the Department of Library Services (DLS) will be responsible for University-wide communication of this policy. DRIS will also assist researchers with information on funders' requirements with regard to RDM.
- 11.2 The Department of Library Services will provide consultation and training services for researchers on research data management, e.g. on compiling research data management plans, metadata standards, reference support for finding and citing of data sets, and data publishing, etc.
- 11.3 The Department of Information Technology Services (ITS) will take responsibility for information technology related issues with regard to RDM, e.g. storage, redundancy etc.
- 11.4 Faculty administration, Deans and Deputy Deans for research, academic staff, students and supervisors, and all University affiliates have a responsibility towards the curation and management of raw and processed data for all research projects conducted at the University (see Research Data Management Procedure). Deans of Faculties and Heads of Departments should ensure that all relevant role-players in their departments are aware of, and adhere to, the University's Research Data Management policy.

## **12. POLICY LIFE CYCLE**

This policy should be reviewed every three years. The Research Data Management Procedure will be revised as and when needed.

## **13. DOCUMENT METADATA**

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