

GOOD PRACTICE IN RESEARCH DATA MANAGEMENT

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Author:	Dr Ray Kent
Originating Department:	Research, Business and Innovation
Approved by:	Nigel Wright, Pro Vice-Chancellor (R&I)
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DE MONTFORT UNIVERSITY

GOOD PRACTICE IN RESEARCH DATA MANAGEMENT

This document provides guidance on good practice in Research Data Management (RDM) at De Montfort University (DMU), including the University's expectations for the management and sharing of research data¹.

The guidance is relevant to DMU academic staff, research staff and postgraduate research students; external consultants and contractors conducting research at or on behalf of the University; and visitors that undertake research at or on behalf of DMU (collectively 'researchers'). **Everyone undertaking and/or supporting research at the University should ensure that they are familiar with these guidelines** and related guidance on the good conduct of research (see Section 2).

1. Context and definitions

As an increasingly research-oriented University, DMU strives to achieve research excellence in each of its core academic disciplines. As part of these efforts the University recognises the need to promote good practice in collecting, storing, curating and (where it is appropriate) making accessible, selected research data-sets produced by its researchers. This is particularly relevant to digital data that support research outputs, but may apply to other research data for which publication is not foreseen (e.g. data contained in laboratory notebooks and Ph.D. theses).

In this document 'research data' include, but are not limited to (Lyon & Pink, 2012):

- Results of experimental work or simulations
- Statistics and measurements
- Computational models and software
- Observations e.g. data collected in the field
- Survey results, either in print or online
- Interview recordings and transcripts, and the coding applied to these
- Other audio or audio-visual material, e.g. musical or dance performances from which data are derived
- Images from cameras (including smart-phones) and scientific equipment
- Textual source materials and annotations

Research data are valuable assets that require proper stewardship if they are to deliver benefits for the researcher, the University and wider society (see for example, Corti et al., 2014). The benefits of good stewardship include (after Lyon & Pink, 2012; RCUK, 2016):

- *Visibility*: increasing the visibility of DMU's research and researchers, leading to reputational enhancement for both the individual and the institution;

¹ 'Research data' are defined as: "records, files or other evidence, whether in print, digital, physical or other formats, that comprise a research project's observations, findings or outputs, including primary materials and analysed data collected from a third party" (Lyon & Pink, 2012). For the avoidance of doubt, data collected for research administration purposes, such as returns to the Higher Education Statistics Agency (HESA) and the Research Excellence Framework (REF), are excluded from our definition.

- *Openness*: reinforcing open scientific inquiry and stimulating new approaches to data collection and methods of analysis;
- *Transparency*: permitting the independent validation of DMU's published research data, thereby improving the quality of its research;
- *Re-use*: where appropriate, allowing the re-use of published data by the original author, or others, for unforeseen research purposes, thereby increasing the efficient use of public funds by avoiding unnecessary duplication in the collection of data.

Notwithstanding circumstances that might require access to certain research data to be restricted (e.g., for reasons of national security or to preserve the anonymity of human participants in a research study), DMU believes that open access to its data will bring significant benefits to the University, in terms of raising its academic profile. The University must also ensure that it is compliant with the requirements of external funding bodies, where the terms and conditions of an award specify that DMU researchers follow certain practices relating to data collection and curating; and/or mandate that the University should preserve and make available data arising from a grant.

This document provides a set of principles and expectations that form a framework for effective management of research data (Section 2). By modelling good practice in this area, DMU aims to demonstrate its commitment to conducting high-quality research whilst also safeguarding the intellectual property rights of its researchers. The guidance also lends clarity to issues such as the University's approach to the storage, retention and disposal of research data, in conformity to legal, ethical and contractual requirements.

2. Principles and expectations regarding good practice in the management of research data

- a. The University has duties and responsibilities to external funders that require it to collect, curate, analyse and disseminate research data generated using grant funding provided for this purpose. In addition, it wishes to apply the same good practice in RDM to data that were not underpinned by grant funding, but which were generated in the course of normal academic duties including research and scholarship activity. These data are institutional assets that require to be managed in a way that will facilitate delivery of the University's Strategic Framework 2015-20 and its Research and Innovation Strategy 2013-17.
- b. All research data created by researchers working at, or on behalf of, DMU are the property of the University, unless subject to a grant, contract or other legally binding agreement signed by the University that stipulates that these data belong to a third party. For the avoidance of doubt, where legislative requirements apply, they will take precedent over this.
- c. This guidance is part of a suite of policies and related guidance that have been produced with the aim of ensuring good governance in the conduct of research and knowledge exchange activities at DMU. It should be read in conjunction with the *Universities UK Concordat to Support Research Integrity* (2012) and DMU's *Guidelines for Good Research Practice* (2015)². Attention is drawn to Section 8 of the *Guidelines* which includes in the definition of research

² See: <http://www.dmu.ac.uk/research/ethics-and-governance/research-integrity-and-ethics.aspx>

misconduct the fabrication, falsification, misrepresentation and other misuse of research data, which may include placing unnecessary restrictions on access to data, or re-use of data.

- d. De Montfort University upholds the principle that its researchers should have ***privileged access to, and exclusive use of, data collected in the course of a research project prior to these data being published (made openly accessible)***. However this principle is subject to contractual, ethical, legal or commercial considerations, which may require the University to grant access rights to third parties.
- e. Where a funding body, publisher or their agent requests exclusive rights to publish or re-use University research data without any assurance that it will be made openly available upon publication, the University's default position will be to refuse such a request, unless required to grant such rights as part of the terms and conditions of grant, or under a legal obligation.
- f. The University requires that its researchers will retain selected research data-sets and, where stipulated by a funding body, offer them for deposit and preservation within an appropriate national or international repository, data service or subject-based repository, or a repository at DMU. The repository should allow the data to be preserved for a reasonable period³ and held securely in accordance with RDM best practice; it should also permit the data to be made openly available with minimal restrictions on use, provided that open access will not constitute a breach of the University's contractual, ethical, regulatory or legislative obligations to third parties.
- g. When data are no longer required to be kept (for example, at the end of a retention period as stipulated by a funding body; or for ethical or legal reasons), they may be deleted or destroyed according to RDM best practice prevailing at the time of their deletion, taking into account all requirements of funders and collaborators, and all necessary contractual, ethical, regulatory or legislative obligations.
- h. All publications that report publicly-funded research results should include a brief statement describing how the underpinning data can be accessed, and the terms on which access may be granted. If there is a genuine need to restrict access to the data (e.g. for reasons of confidentiality or security), a clear statement to this effect should be provided in the published work.
- i. The University Research and Innovation Committee is responsible for monitoring the implementation of this guidance, and for updating it to reflect national and international developments in RDM best practice. A review of the guidance will take place in May 2017. Thereafter it will be subject to periodic review, at least biennially.

³ A 'reasonable period' could be: for as long as the data are considered to be of continuing value to their creator or to the wider research community; **or** for the length of time required by a funding body, law or other regulatory requirement. **Where no such period is specified, the University requires that its researchers retain research data and records for a minimum of 5 years following publication or other release of the research.**

3. University responsibilities

When it accepts an offer of external funding, the University must fulfil certain obligations imposed on it by the relevant research funding body through its policy statement on RDM⁴, which may be enshrined in the terms and conditions of the grant; or part of a wider statement of RDM expectations (see, for example, the *Policy Framework on RDM* issued by the Engineering and Physical Sciences Research Council (2011) and the *UK Concordat on Open Research Data* (2016)).

In the case of **EPSRC-funded research**, with effect from 1 May 2015, there is a requirement that the University will:

- Provide data deposit, storage and curation (repository) facilities, either in-house or through a service external to the University, in order to be compliant with the EPSRC's requirements for the deposit, cataloguing, preservation (including regular back-up), storage, discovery and re-use of research data that arise from EPSRC funding;
- Ensure that its researchers have a general awareness of the regulatory environment and of the available exemptions which may be used, should the need arise, to justify the withholding of research data (Principle 1);
- Ensure that its researchers include within their published research papers a short statement describing how, and on what terms, any supporting research data may be accessed (Principle 2);
- Have in place policies and processes to maintain effective internal awareness of its EPSRC-funded research data holdings, and of requests by third parties to access such data (Principle 3);
- Store EPSRC-funded research data that is not generated in digital format, in a manner to facilitate it being shared in the event of a valid request for access to the data being received (Principle 4);
- Ensure the prompt publication of appropriately structured metadata describing the research data held by the University, normally within 12 months of the date on which the data were created. The metadata should be made freely accessible on the internet. They should indicate any restrictions on access, and provide a rationale for same. Where access is to be granted conditionally, the published metadata should state the conditions which must be satisfied before access is granted. Where the research data referred to in the metadata are digital objects it is expected that the metadata will include use of a robust digital object identifier (Principles 5 and 6);
- Ensure that EPSRC-funded research data are securely preserved for a minimum of 10 years from the date of expiry of the researcher's privileged access period (see Section 2(d)) or, if others have accessed the data, from the last date on which access to the data was requested by a third party (Principle 7);
- Ensure that adequate staffing resources are provided to support the curation of EPSRC-funded research data throughout the full data life-cycle, whether through specific grants or from a block grant from the Higher Education Funding Council for England; and allocate within the University responsibilities associated with data curation. Where research data are subject to restricted access the University must implement and manage appropriate security controls (Principles 8 and 9).

⁴ For an overview of funders' requirements, see: <http://www.dcc.ac.uk/resources/policy-and-legal/overview-funders-data-policies>

Further information about the EPSRC's data management requirements can be found at: <https://www.epsrc.ac.uk/about/standards/researchdata/expectations/>

At present, these requirements are specific to EPSRC-funded researchers. Other funders typically require RDM processes and procedures that are project-specific, as laid out in a data management plan (see Section 4.3).

The University anticipates that over the next few years, the UK Research Councils will harmonise their RDM requirements along the lines of the EPSRC Policy Framework (see: RCUK, 2011, 2016; Jones & Weigert, 2015). **As a consequence the University is putting in place an infrastructure for RDM such that all researchers in receipt of public funding will have the means to comply with 'EPSRC-style' requirements by summer 2017.** Further information regarding the new infrastructure will be provided via updates to this document.

4. Responsibilities of the Principal Investigator and other researchers working on a project

4.1 Principal Investigator responsibilities

The Principal Investigator (PI) of a research project (or where there is no grant-holder, the person that instigated the research) carries ultimate responsibility for the proper conduct of the study and the timely dissemination of project results.

Where research data are to be made openly accessible, the PI should complete a metadata page for the De Montfort University Open Research Archive (DORA), containing information sufficient to ensure that the data are discoverable, intelligible and re-useable. The metadata page should be linked to relevant publication(s) on DORA. Guidance on how to do this is available from Alan Cope (acope@dmu.ac.uk) in Library and Learning Services.

Where access to the data is to be restricted, the PI should complete a metadata page on DORA that gives a brief explanation for the reason for restricting access, and describe the conditions under which access may be granted. The metadata page should be linked to relevant publication(s) on DORA. Guidance on completing a metadata page is available from Alan Cope (acope@dmu.ac.uk) in Library and Learning Services.

In addition to the above, Principal Investigators share with other researchers the responsibilities noted in Section 4.2 below.

4.2 Researcher responsibilities

All researchers associated with the work, *including the PI*, are responsible for:

- Requesting funds from the project sponsor to help meet the costs of RDM, where these are eligible costs;
- Familiarising themselves with contractual, ethical and legislative requirements that relate to research data collected during the study;
- ***In the case of publicly-funded research***, including within their published research papers a short statement describing how, and on what terms, any supporting research data may be accessed;
- Ensuring that they are aware of, and follow best practice in the management of research data and records, such that these:

- Are accurate and complete;
- Are held securely;
- Can be retrieved and made available upon request, where this would not compromise confidentiality or security of the data;
- Are backed-up regularly in accordance with accepted practice; and
- Are retained by the University for a minimum of 5 years following publication (10 years from the date of on which the data were last accessed, in the case of EPSRC-funded data-sets), so as to comply with all legal, ethical, commercial and regulatory requirements of the funder and the University.

In each instance, the University will make best endeavours to support the researcher in meeting the relevant requirement, through advice, training and the provision of infrastructure for data management (see also Section 5). This infrastructure will be rolled-out over the period 2016-18, as internal funding allows.

4.3 Data Management Plans

Researchers may also be obliged by the terms and conditions of the grant to prepare a plan for data management and sharing, to be made available to the potential funder as part of a grant application. This plan may include information regarding long-term curation of the data, including arrangements for their storage at DMU (or at an approved external repository) in the event that the PI leaves the University.

Guidance on funders' policies and detailed advice on the preparation of data management plans can be found at: <http://www.dcc.ac.uk/resources/data-management-plans>. We are also developing DMU-specific guidance and templates, which will be available from the RBI in summer 2016.

Where there is no external funder, or the funder's requirements are unclear, we encourage researchers to prepare a data management plan, in order to organise their thoughts around data management. Assistance with this task may be sought from the members of staff listed in Section 5.

5. Advice on Research Data Management

Support is available from the Directorates of Research, Business and Innovation (RBI), Library and Learning Services (LLS) and Information Technology and Media Services (ITMS), respectively. The principal contacts and their responsibilities are shown in the table below:

Query	Lead Directorate	Contact(s)
<p>Funders' requirements and data management plans</p> <p>Understanding the RCUK Common Principles on Data (2011) and the EPSRC Policy Framework on RDM (2011); interpreting other funders' requirements for RDM; the costing of RDM services on grant</p>	RBI	<p>General principles:</p> <p>Mandy Thomas (mandy.thomas@dmu.ac.uk)</p> <p>UK Research Councils:</p> <p>Dr Rebecca Hames (rhames@dmu.ac.uk)</p>

applications; and the preparation of data management plans.		EC (Horizon 2020): Anthony Ryan (anthony.ryan@dmu.ac.uk)
Research Data Register Enquiries relating to the preparation of metadata pages on DORA, the institutional repository, and linking these to publications.	LLS	Alan Cope (acope@dmu.ac.uk)
Data Storage and Retrieval Storage of research data on 'live' projects; and archival storage of research data.	ITMS	Jon Hill (jon.hill@dmu.ac.uk)
Data Preservation, Curation and Disposal Advice on the retention of research data, its active curation and/or its disposal.	ITMS	Fraser Marshall (fmarshall@dmu.ac.uk)

6. Acknowledgements

In creating these guidelines, the University has sought to draw upon best practice across the sector including, but not limited to policies in place at Queen's University Belfast, the University of Bath and the University of Edinburgh; and also to make use of the advice provided by the Digital Curation Centre through its series of guides on RDM, notably Jones et al. (2013).

7. References

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Dr Ray Kent
Director of Research, Business and Innovation
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