

RESEARCH DATA MANAGEMENT STRATEGY 2018-2022

A Vision for Research Data Management in the University

By 2022 researchers in the University will be well-informed about the importance of research data management and will routinely adopt best practice in managing, preserving and sharing data. University data management infrastructure and services will be well-integrated into research activity, and will support researchers at all stages of the research journey. By this means the University will be making more and higher-quality data accessible to more people, in support of its aspiration to achieve the highest standards of integrity, quality, and openness in its research.

Our Strategy

Data are essential to the integrity, quality and value of academic research, and responsibility for the collection, management, use, preservation and sharing of research data is shared by the University and the researchers who work and study here.

Where research data are managed effectively, and are made discoverable, accessible and re-usable, both the University and individual researchers reap benefits in terms of research practice, impact, and outcomes. Best practice in the management and sharing of data brings benefits to the extent, quality and reach of the University's research, and is to the professional advantage of individual researchers.

This Research Data Management (RDM) Strategy embodies the University's commitment to sharing the knowledge it creates in order to realise the greatest possible social and economic benefit. It is aligned to the aims of the national research community, as embodied in the UK *Concordat on Open Research Data*.¹ We support the principle stated in the *RCUK Common Principles on Data Policy*,² that 'publicly funded research data are a public good, produced in the public interest, which should be made openly available with as few restrictions as possible in a timely and responsible manner'.

The Strategy establishes a framework for RDM governance and service provision in the University, and will enable us to equip our researchers with the skills, means and motivation to manage and share their research data for the greatest possible benefit to themselves, to the University, to their academic peers, and to society.

The Research Data Management Strategy is articulated in five Strategic Themes, which express the high-level Aims for RDM in the University, and provide a framework for operational planning.

¹ See <http://www.rcuk.ac.uk/media/news/160728/>. The *Concordat* was published on behalf of the UK research community by a multi-stakeholder group led by RCUK, HEFCE, Universities UK and the Wellcome Trust.

² <http://www.rcuk.ac.uk/research/datapolicy/>.

Governance and management

Aim: To fully integrate research data management policy, practices and operations into University research strategy, planning, and management

Research Data Management is acknowledged by the University as a core element of research that must be fully integrated into research strategy, planning, and management. Responsibility for delivery of RDM services is shared by the Research Data Service and other key functions, including Research Services at the grant application and data management planning stage, IT for storage of data during and after the active research stage, and the Library at the research outputs dissemination stage. Service provision is co-ordinated between these and other functions in accordance with strategic requirements.

Infrastructure and services

Aim: To provide the infrastructure and services that will enable researchers and research students to create, use, preserve and share research data to the highest standards

The University provides infrastructure for the efficient and responsible management, use, preservation and sharing of research data, and services to support researchers at all stages of the research journey, from research design and applying for funding, through creation, storage and use of data, to long-term preservation and sharing of data in support of research outputs.

Capabilities and skills

Aim: To equip researchers and research students with the knowledge, capabilities and skills they need to manage data responsibly and realise the full value of the data they use

The University actively develops the digital and research data management capabilities and skills of its researchers and research students, enabling them to make the best use of the data they work with, through the provision of information, training and professional development support.

Communication and engagement

Aim: To increase best practice in research data management and use of University services, and to foster the growth of an open research culture in the University through effective communication and engagement with our internal audiences

By means of communication and engagement, the University raises awareness among researchers, research students, professional services, and senior managers of research data policies and requirements, engages in dialogue with service beneficiaries to support service development and delivery, promotes the benefits of data sharing, and fosters the growth of an open research culture.

Sector engagement and collaboration

Aim: To be a more active participant in the UK RDM community and contributor to the development of an open research culture

The University actively engages with the RDM community and the higher education sector more broadly to develop and share knowledge and expertise in research data management, to contribute to development of services, and to promote the growth of an open research culture.

Delivery of the Research Data Management Strategy

The RDM Strategy is implemented through a rolling three-year Operational Plan, which will enable business planning for sustainable service delivery. A Stakeholder Analysis and Management Plan is maintained to ensure the service is developed and managed effectively and inclusively, and that the interests of all stakeholders are taken into account. A Measurable Benefits Data Plan has been established, by means of which the Research Data Manager will record and report the University's progress in realising the benefits of its RDM Strategy.

Further information about these instruments is provided in Appendix 2.

Appendix 1. Research Data Management: definitions, obligations, requirements, alignment to University Strategy

Definitions

The UK *Concordat on Open Research Data* (2016) defines research data as ‘the evidence that underpins the answer to the research question’.³ They are the raw materials collected, processed and studied in the undertaking of research, and constitute the evidential basis that substantiates published research findings. They may be primary data generated or collected by the researcher, and any data derived from these by further processing or analysis, or secondary data collected from existing sources and processed as part of the research activity. They may exist in digital, print or physical forms, and may include, in addition to the raw data themselves, the means to generate or interpret data, such as models, software applications and computer code. Data may be collected by means of observation, experiment, simulation, or by derivation or aggregation from existing sources.

Research Data Management (RDM) encompasses the full lifecycle of research, from preliminary data management planning, through collection, storage, processing and documentation of data during the research activity, to long-term preservation and sharing of data on project completion and publication of research outputs.

RDM is central to both the integrity and the value of research and places obligations on research organisations as well as individual researchers. Many stakeholders in research, including public and charitable funders, journal publishers, and researchers themselves, expect data supporting research outputs to be made openly available wherever possible, so that they can be consulted to validate published findings and made accessible for others to re-use, for further research and other purposes, such as teaching, policy-making, and the development of products and services.

RDM is relevant to all researchers at all stages of their careers, including research students, in all disciplines, and applies whether data are digital or non-digital, original to the research activity or re-used from existing sources.

Obligations

The *Concordat on Open Research Data* states as its aim:

*to ensure [that] research data gathered and generated by members of the UK research community is, wherever possible, made openly available for use by others in a manner consistent with relevant legal, ethical and regulatory frameworks and disciplinary norms, and with due regard to the costs involved.*⁴

RDM is a core component of research management in a research organisation. In addition to their obligations towards the public funders of research, researchers and research organisations have ethical and legal responsibilities towards research collaborators, partners and participants, and must ensure that policies, systems and practices are in place to maintain confidentiality of information, respect intellectual property rights, and comply with relevant legislation and contractual undertakings in the management of research data.

The University has a responsibility to provide services and infrastructure that support and promote the effective collection, management, use, preservation and open sharing of research data. Researchers have a responsibility to use good research data management practice and to make the data that support their research outputs as openly available as possible.⁵

³ *Concordat*, Definitions, <http://www.rcuk.ac.uk/media/news/160728/>.

⁴ *Concordat*, Introduction.

⁵ ‘Employers of Researchers will foster a research environment which recognises the value of open data and will seek to provide appropriate access to infrastructure systems and services to enable their

In accordance with our obligations as a publicly-funded research organisation and our commitment to the principles of open research, the University's *Research Data Management Policy* requires all researchers to preserve and, wherever possible, share data that support published research findings using a suitable data repository.⁶

Requirements for researchers

Researchers and research students are required:

- to be educated in RDM best practice and trained in relevant skills: discovering and using secondary data; storing, organising and documenting data appropriately; observing ethical and legal requirements in collecting and sharing data; dealing with IPR in data; preserving and sharing data using appropriate services;
- to be aware of funders' and the University's research data policies and to comply with them in their research practice;
- to integrate data management planning at an early stage in project development and, where required by a funder, to submit a data management plan in their grant application;
- to manage data in accordance with the requirements of research integrity, research ethics and participant confidentiality, relevant legislation, such as the Data Protection Act and the Freedom of Information Act, to respect intellectual property rights in data, and to comply with any contractual obligations in the management of research data;
- to store and share active data using appropriate storage for secure and collaborative access, and wherever possible to use University-managed infrastructure that provides guaranteed data security and disaster-resilience;
- to preserve and share their data as openly as possible in accordance with the FAIR Data Principles (data should be made Findable, Accessible, Interoperable and Re-usable to the fullest extent that is consistent with any legal, ethical and commercial obligations),⁷ by depositing data in appropriate digital repositories and using standards and formats to support discovery and use.

Requirements for a University Research Data Service

A University Research Data Service must:

- be sustainably established and managed on the basis of defined and continually-evolving operational and business models;
- be integrated into and co-ordinated with a range of University functions that directly deliver services and enable service delivery;
- use standards-based infrastructure and systems to support data storage, security, collaborative use, preservation and sharing;
- enable our researchers to manage their data responsibly and effectively throughout the lifetime of research, respecting the rights and interests of participants, collaborators and other data providers;
- help our researchers realise the value of their data in high-quality evidence-based research outputs and outcomes;
- ensure that where data have long-term value they are preserved and made accessible to others for re-use, in order to achieve the greatest possible benefit for others and return credit to the original researchers;
- ensure that the University meets and is accountable for its legal and ethical obligations in the management of research data, and the expectations of its funders as expressed in their research data policies.

researchers to make research data open and usable, having due regard to value for money. They will also recognise good data management as an important aspect of researchers' duties' (*Concordat*, Principle #1).

⁶ <http://www.reading.ac.uk/reas-RDMpolicies.aspx>.

⁷ <https://www.force11.org/group/fairgroup/fairprinciples>.

Alignment to University Strategy

The RDM Strategy aligns with the **ambition** of the *University Strategy 2026*⁸ ‘to enhance our standing as a leader in research and higher education’, and contributes to each of the University’s three strategic themes:

- *Educating for 21st Century Lives*, through our emphasis on developing the research data capabilities and skills of our research students as well as our research-active staff, so that they can make the most effective use of the data they work with;
- *Securing and Sustaining Societies*, through our aim to ensure that research data support the quality of research undertaken at the University and the most effective transmission of knowledge for public and social benefit; and
- *Advancing Policy and Practice*, through our commitment to making the research data collected here as open and re-usable as possible, not only within research contexts, but also in areas of evidence-based policy making, development and delivery of services for public benefit, and commercial innovation.

We will support the University in **growing impactful research strengths** through building its research power and impact in distinctive areas of excellence, and in **engaging with policy and practice** to grow our influence through collaboration and the promotion of research-informed policy, practice and professional education.

Good Research Data Management at an institutional and individual level will embody the University Strategy’s principle of **academic excellence**, as realised through a ‘commitment to the principles of academic rigour and intensity, and the intrinsic value of knowledge and understanding’, and as reflected in ‘our reputation for excellent research’.

⁸ <https://www.reading.ac.uk/closed/university-strategy/us-university-strategy.aspx>.

Appendix 2. Supporting documentation

The documentation listed below has been developed to support implementation of the RDM Strategy.

RDM Service Operational Plan

The Operational Plan supports implementation of the Research Data Management Strategy. For each Strategic Theme a set of Objectives is identified. For each Objective a set of Actions is listed. Each Action is assigned to one of more of the three years covered by the plan, and responsibility for carrying out each Action is specified.

RDM Service Communications Plan

The Communications Plan identifies overall communications objectives, key messages and communication channels, and provides a stakeholder communication plan, in which stakeholder groups and communication strategies are specified.

RDM Service Benefits Analysis

The Benefits Analysis identifies the long-term strategic benefits that will be realised by the University through operation of the RDM Service. These are further analysed into Observable/behavioural Benefits, Benefits for researchers, and Measurable benefits.

RDM Service Measurable Benefits Data Plan

The Measurable Benefits Data Plan specifies eight benefits measures which will be used to assess and report on progress in achieving the strategic aims of the RDM Service. For each measure, the data required and collection method, collection time period and deadline, and lead responsibility are identified.

RDM Service Benefits Realisation Spreadsheet

The Spreadsheet will be used to record eight benefits measures over time. Some measures will be recorded quarterly; some on an annual basis.

| Version | Keeper | Approved | Approved by |
|----------------|-----------------------|------------------|--------------------|
| 1.0 | Research Data Manager | 15 November 2017 | UBRI |