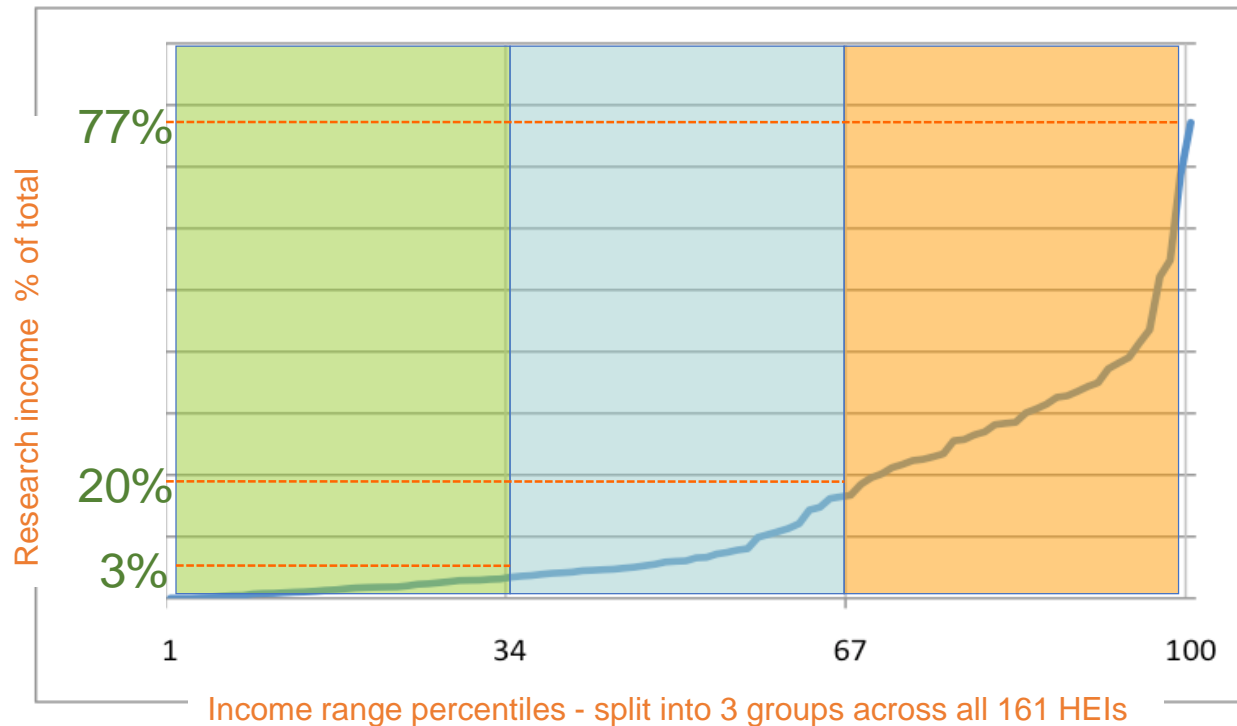# An Introduction to RDM Services

S. Venkataraman
Research Data Specialist
Digital Curation Centre

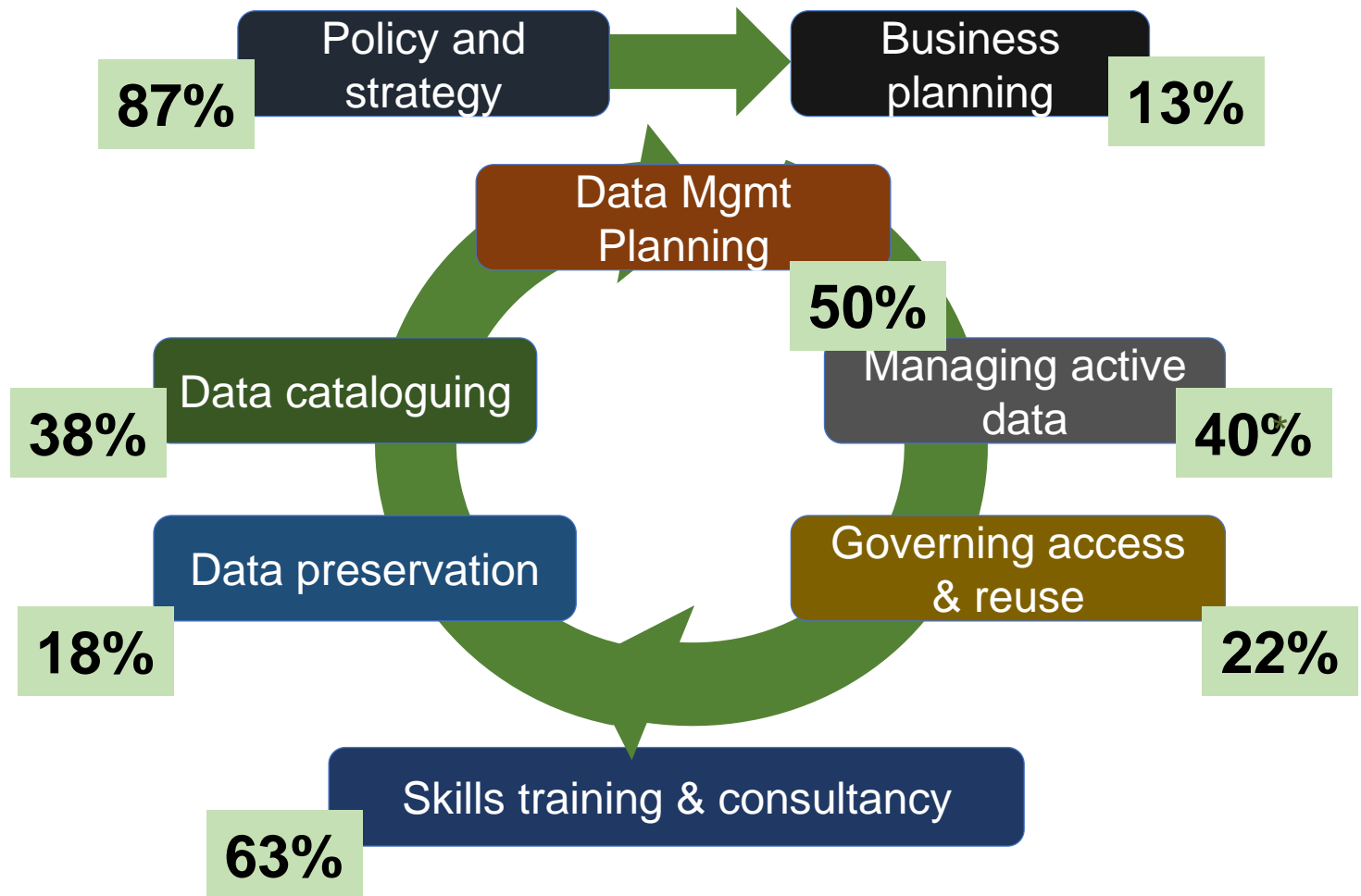The Hong Kong University of Science and Technology, 19th March 2019

Annual RDM survey issued by DCC

- 60 UK Higher Education Institutions responded to DCC survey 2015, of 132 invited

- Research-active institutions well represented


Briefing and links to data: http://www.dcc.ac.uk/survey2015

Who has what in place?

- Policy and strategy — 87%
- Business planning — 13%
- Data Mgmt Planning — 50%
- Managing active data — 40%
- Data cataloguing — 38%
- Governing access & reuse — 22%
- Data preservation — 18%
- Skills training & consultancy — 63%

*% indicating 'rolling out' or 'embedding' * referred to 'access & storage systems' in survey*

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About University of Edinburgh

- Founded 1583

- 39,576 students

- 14,346 postgraduate students

- 6,816 academic staff

- Research income: £253.9 million (2015-16)

- Mission: the creation, dissemination and curation of knowledge

- 20 schools in 3 colleges:

- Arts, Humanities & Social Sciences

- Medicine & Veterinary Medicine

- Science & Engineering
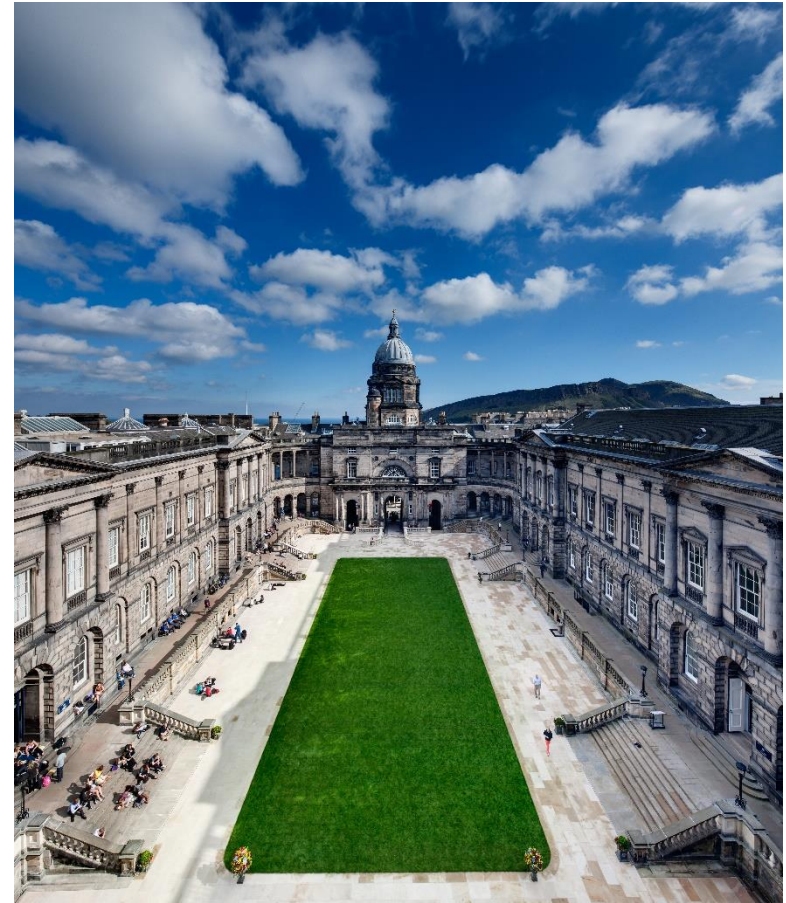
© www.nealesmith.com

Adapted from R. Rice

About Information Services

Argyle House © CoStar

- Applications

- IT Infrastructure

- Learning, Teaching & Web

- Library & University Collections

- User Services

- Information Security

- EDINA

- Digital Curation Centre

Adapted from R. Rice

Where to start?

Policy sets service scope and can unlock funds

- Important elements
    - Clearly stated coverage and requirements
    - Well defined roles and responsibilities
    - Research data definition

- Institutional policy should reflect the external context

External context and drivers

OECD
BETTER POLICIES FOR BETTER LIVES

data are a public good and should be openly available

HORIZON 2020

Open Research Data pilot

- Findable
- Accessible
- Interoperable
- Reusable

FAIR data principles

G8 Lough Erne 2013

G8 Science Ministers Statement

Panton Principles
Principles for Open Data in Science

FORCE11
The Future of Research Communications and e-Scholarship

"For science to effectively function, and for society to reap the full benefits from scientific endeavours, it is crucial that science data be made open"

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Data policy trends

- Proliferation of policies

    - Make the landscape easier for researchers to navigate

    - More harmonisation needed

    - Clarifications needed when requirements conflict

- Growth in open data policies

    - Should push open science agenda but not at expense of RDM

- Research data policies often 'aspirational' and high-level

    - Need for more group guidelines and practical procedures

    - More researcher input when developing services & infrastructure

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Early UK research data policies

"Statement of commitment"
→ Infrastructure → policy

legal tone / language
a section in uni DM policy
useful guide as appendix

"10 commandments"
mutual promises
aspirational

Baseline of RCUK Code
+ procedures & support

Based on Edin.
with a few
additions

UK policy examples

HE Institution in chronological order	Date Date the policy was adopted	Definitions Offers definitions of key RDM terms, i.e. "data", "documentation"	Support Broadly defines the role institution plays in supporting RDM and outlines RDM responsibility of researchers	DMP Specifies a requirement to complete a DMP (either institutional or funder)	Scope Policy specifies who it covers
University of Birmingham	2009 October	○	◐	○	●
University of Edinburgh	2011 May	○	●	●	◐
University of Northampton	2011 June	●	●	◐	●
University of Hertfordshire	2011 September	●	●	●	●
University of Warwick	2011 November	◐	●	◐	●
Glyndwr University	2011 December	○	○	◐	◐
University of Southampton	2012 February	●	○	○	●
University of East London	2012 March	○	●	●	◐
Brunel University	2012 March	○	●	●	●
University of Essex	2012 April	○	●	●	●
Queen Mary, University of London	2012 June	●	●	●	●
University of Sheffield	2012 July	●	●	●	●
University of Leeds	2012 July	◐	●	●	○
University of Oxford	2012 July	●	●	●	●
University of the Arts London	2012 October	●	●	◐	◐
Goldsmiths University	2013 January	○	●	●	○
The University of Lancaster	2013 February	●	●	●	●
University for the Creative Arts	2013 February	○	●	●	○

www.dcc.ac.uk/resources/policy-and-legal/institutional-data-policies

Analysis of what policies cover

Laurence Horton did an analysis of the 31 policies listed in 2014

- 74% specify a requirement for data to be open where possible

- 74% of unis require a DMP and a further 19% point to funder requirements. Only 2 don't mention DMPs at all.

- 55% specify a length of time for which data should be retained / preserved

- 45% give a full definition of research data

- Only 23% contain a statement on institutional ownership of research data

- Again, only 23% (7 out of 31) mention RDM costs

Horton, L and DCC (2014) 'Overview of UK Institution RDM Policies', Digital Curation Centre.

Available at: www.dcc.ac.uk/resources/policy-and-legal/institutional-data-policies

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Guides on policy development

Guidance to help institutions get started:

- Five steps to developing a research data policy
  - www.dcc.ac.uk/resources/policy-and-legal/five-steps-developing-research-data-policy

- LEARN project guidelines for developing an RDM policy
  - http://blogs.ucl.ac.uk/learn-project/files/2016/01/red_LEARN_Elements_of_the_Content_of_a_RDM_Policy.pdf

- ANDS Data Management Policy outline
  - http://www.ands.org.au/datamanagement/policy.html

ands
AUSTRALIAN NATIONAL DATA SERVICE

learn

DCC | Jisc
DCC 'QUICKSTART' LEAFLET
FIVE STEPS TO
DEVELOPING A
RESEARCH DATA
POLICY
January 2014

dcc.ac.uk

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RDM Roadmap (living document)

Academic-led steering group governs the service

1st, August 2012 –May 2015: Rollout and consolidation

2nd, September 2015 – July 2016: Transition, programme to service

3rd, August 2017-July 2020:
     User journey, filling gaps
     32 prioritised objectives with
     actions and deliverables

Frank da Silva on Flickr CC BY-NC-ND 2.0

Adapted from R. Rice

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RDM Roadmap

- **July 2010 – May 2011**

- In 2010 a research data storage paper was submitted to the University's IT Committee with six key recommendations for the University's data infrastructure:

  1. Archiving of research data
  2. Accessibility of research data to all virtual collaborators
  3. Globally-accessible, cross-platform file store
  4. Back up and synchronization of data on mobile devices
  5. Establishing networks of knowledge
  6. Federated structure for local data storage

- Followed by the Research Data Management Policy in May 2011 written by the IS RDM Action Group and approved by the RDM Steering Committee.

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RDM Roadmap V2.0

- **August 2012 – July 2016**

- Business Case was submitted to the University IT Committee in June 2012
- The Roadmap set out a high level plan for delivery of services across four strategic areas (image on the right):

To provide clear information to all University staff on the progress that has been made in delivering the RDM programme.

Data Management Planning	Active Data Infrastructure	Data Stewardship

Data Management Support

RDM Roadmap V3.2

- **August 2017 – July 2020**

New strategic area: **unification of the service**

➢ Researchers expect a seamless service experience.

➢ Millenials' expect the same quality of services like from Apple or Google

➢ The organisations are moving away from focusing on cost reduction and concentrate on delivering customer-centric experiences and innovations

➢ University libraries: from collection holders to service providers and towards the "open science turn".

➢ **IF THE SERVICE ISN'T RELEVANT FOR THE PEOPLE USING THEM, THEY'LL GO ELSEWHERE!**

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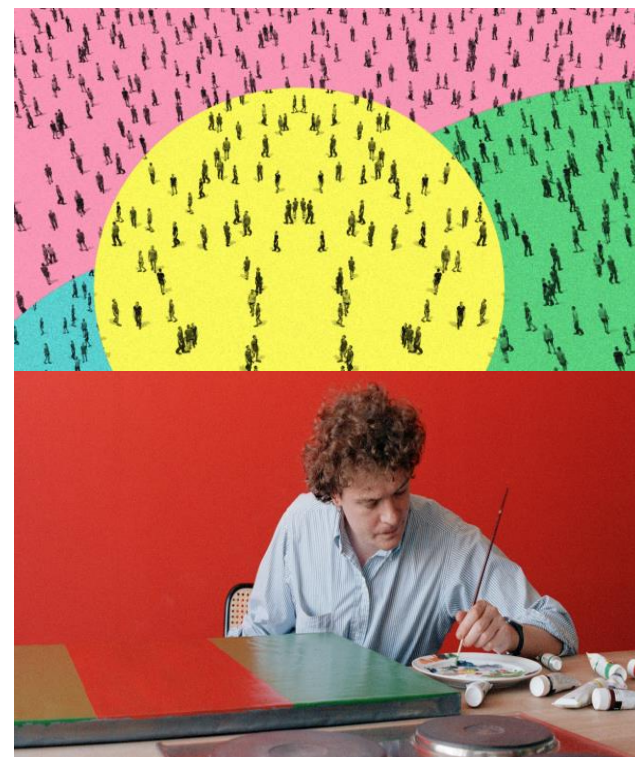
University's RDM Policy (May, 2011)

POLICY

- **Commitment to research integrity, DMPs, open data**

- **Articulates clear responsibilities of the researcher and of the institution**

Policy by Nick Youngson CC BY-SA 3.0 Alpha Stock

Images

Adapted from R. Rice

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University's RDM Policy (May, 2011)

This policy for managing research data was approved by the University Court on 16 May, 2011.

The University adopts the following policy on Research Data Management. It is acknowledged that this is an aspirational policy, and that implementation will take some years.

1. Research data will be managed to the highest standards throughout the research data lifecycle as part of the University's commitment to research excellence.
2. Responsibility for research data management through a sound research data management plan during any research project or programme lies primarily with Principal Investigators (PIs).
3. All new research proposals [from date of adoption] must include research data management plans or protocols that explicitly address data capture, management, integrity, confidentiality, retention, sharing and publication.
4. The University will provide training, support, advice and where appropriate guidelines and templates for the research data management and research data management plans.
5. The University will provide mechanisms and services for storage, backup, registration, deposit and retention of research data assets in support of current and future access, during and after completion of research projects.
6. Any data which is retained elsewhere, for example in an international data service or domain repository should be registered with the University.
7. Research data management plans must ensure that research data are available for access and re-use where appropriate and under appropriate safeguards.
8. The legitimate interests of the subjects of research data must be protected.
9. Research data of future historical interest, and all research data that represent records of the University, including data that substantiate research findings, will be offered and assessed for deposit and retention in an appropriate national or international data service or domain repository, or a University repository.
10. Exclusive rights to reuse or publish research data should not be handed over to commercial publishers or agents without retaining the rights to make the data openly available for re-use, unless this is a condition of funding.
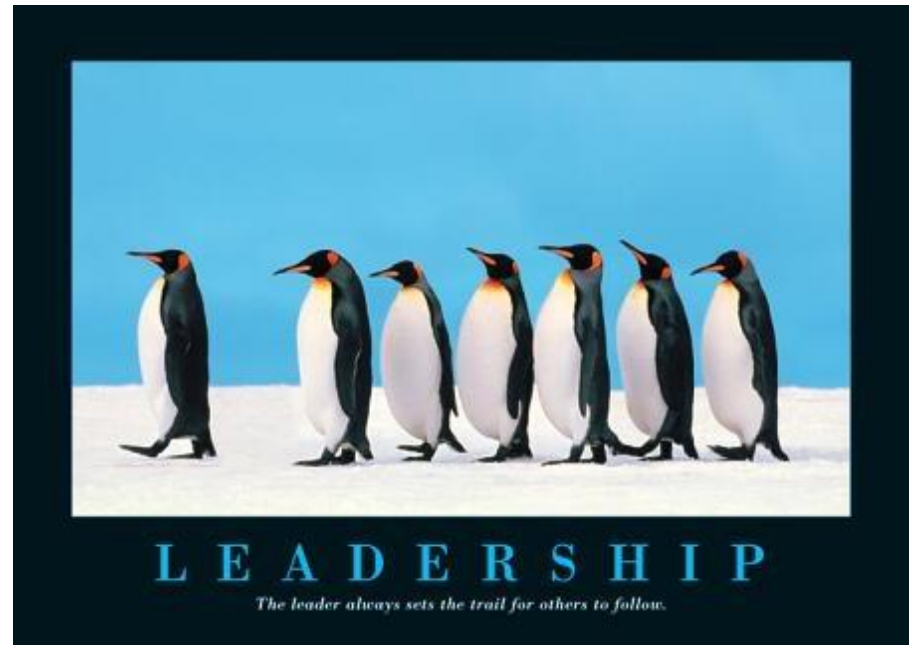
Related Information

- University Research Data Service
- University Research Data Roadmap

Building your approach

Establish a working group

- Good mix of representatives from operational units

- Senior management leadership

LEADERSHIP

The leader always sets the trail for others to follow.

http://www.executive-coaching-services.co.uk/executive-coaching/leaders.jpg

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Assess institutional context

- Number of active researchers

- Aspirations and strategic objectives

http://www.drewsmarketingminute.com/images/2014/09/Creating-A-Company-Culture.jpg

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Be aware of existing infrastructure

Research Organisation Description		
RDM profile component	**Record HEI Link - insert your URLs in the space provided**	**Guidance**
Means of raising staff awareness of funders' research data requirements		Provide a link to an information page on funders' policies. This could be internal or external (E.g., DCC's policy overview table)
Research data policy		Provide a link to research data policy or aspirational statement
Strategy or implementation plan for research data services		Provide a link to research data strategy page or roadmap
RDM advice and support services		Provide a link to page describing data management planning guidance and/or support services at this organisation
Active data storage		Provide link(s) to active research data storage information page(s). There may be multiple options at Research Group/School/College/Central levels.
Data register or catalogue		Provide a link to your internal research data registration homepage. This may be provided via the data repository and/or CRIS.
Persistent identification for datasets		Provide a link to any page(s) detailing schemes used to identify digital data items (e.g., DataCite).
Data access procedures		Provide a link to any information provided about research data access.
Secure data access		Provide a link to any information provided about secure data access and governance.
Institutional publications repository (if it includes research data or metadata)		Provide a link to your institutional repository homepage
Data repository for longer term access and preservation		Provide a link to your research data repository homepage. This may be an extension of your publications repository, a separate data repository or a pointer to an external data repository service (E.g., Zenodo).

dcc.ac.uk

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http://www.dcc.ac.uk/projects/opd-for-rdm

Capability models

- ANDS Capability Maturity Model www.ands.org.au/guides/capability-maturity

- Data Audit Framework https://researchdata.jiscinvolve.org/wp/2016/11/27/finding-researchers-really-really-want-research-data-shared-service

- Data Curation Profiles
  http://datacurationprofiles.org

	Level 1 Initial	Level 2 Development	Level 3 Defined	Level 4 Managed	Level 5 Optimised
	Process is disorganised & *ad hoc*	Process is under development	Process is standardised, communicated	Process is managed, measured	Focus is on continuous improvement
Institutional policies & procedures	Policies & procedures may be undeveloped, not up to date, and/or inconsistent.	Policies & procedures are developed & harmonised.	Policies & procedures are promulgated & absorbed into behaviours.	Policies & procedures accepted as part of the culture & subject to audit.	Policies & procedures are subject to review & improvement.

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Common survey findings

- Sharing driven by benefits not policies

  (e.g. reuse potential, citation, public good etc)

- Informal, peer-to-peer sharing methods most common

  - email, dropbox, transfer on USB etc

- Lots of data held on hard drives and cloud services rather than managed university filestores

- Lack of clarity on data ownership or processes when staff leave

- There is a demand for and intention to use uni services, but low uptake in many cases so far

Service development strategy

1. Consider each service element individually

2. Assess your current capability

3. Define your target capability

4. Identify barriers and opportunities

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Implementing research data policy

Data Management Planning	Active Data Infrastructure	Data Stewardship
Data Management Support		

- Edinburgh RDM roadmap example shows how to break work down into sections and allocate out tasks across divisions

  www.ed.ac.uk/information-services/about/strategy-planning/rdm-roadmap

Data Stewardship

Tools and services to aid in the description, deposit, and ongoing management of completed research data outputs.

Addresses RDM policy clauses 6, 7, 9, 10.

Responsible: Library & University Collections and Data Library

Objective	Outcomes	Actions	Deliverables	Target date
6. To develop the data repository for enhanced deposit and discovery of data collections generated by University researchers	Number of new data collections added to the repository Metrics show increased use of data collections in repository	Pilot use of Edinburgh DataShare by 2-3 re-search groups to identify user requirements	Case studies and use cases based on piloted research groups.	Phase 0
		Depositor Workflow and usability	Enhancements made to data repository	Phase 1
		Load balancing and software upgrades		Phase 1
		SWORD remote deposit		Phase 1
		End User Interface improvements		Phase 1
		Multimedia Display		Phase 2

Policy to service (DMPs)

Data Management Planning at Edinburgh

"All new research proposals must include research data management plans or protocols that explicitly address data capture, management, integrity, confidentiality, retention, sharing and publication."

- Develop a template in DMPonline based on this proposed structure / coverage

- Training module available on MANTRA

- Sample plans and advice available from RDM team

- Consideration of need for Software Management Plans

Policy to service (data storage)

Storage services at Edinburgh

"The University will provide mechanisms and services for storage, backup, registration, deposit and retention of research data assets in support of current and future access, during and after completion of research projects."

- Provision of baseline 0.5Tb/user via DataStore

- Support for backup and synchronisation on mobile devices (DataSync)

- Enhancement of existing data repository (DataShare) and new preservation service (DataVault)

- Development of a Data Asset Register

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How to deliver and sustain services?

• DIY or outsource?

- Prevailing institutional culture

- Access to developers / technical expertise

- Possibility for brokered deals, procurement support, regional collaborations...

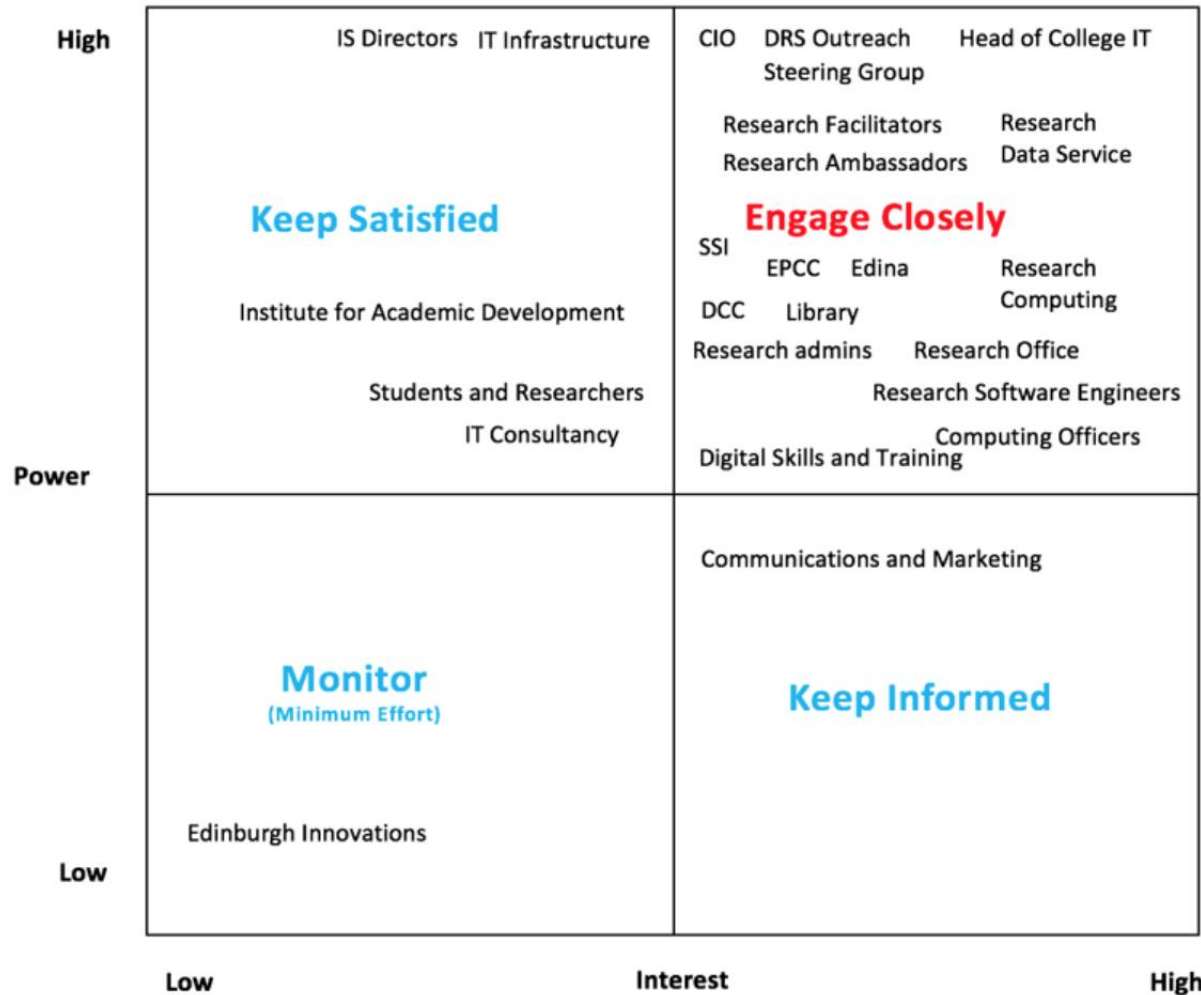- Choice that keeps options open e.g. OS + delivery options

• Cost models

- Part of core institutional provision (overheads)

- Direct costs for research facilities / services

- Charges on research grants e.g. deposit fees

- Grant funding for certain services

https://unlockingresearch.blog.lib.cam.ac.uk/?p=631

Stakeholder mappings

Stakeholder Analysis

	Low ——— Interest ——— High
High Power	**Keep Satisfied** — IS Directors, IT Infrastructure, Institute for Academic Development, Students and Researchers, IT Consultancy / **Engage Closely** — CIO, DRS Outreach, Head of College IT, Steering Group, Research Facilitators, Research Ambassadors, Research Data Service, SSI, EPCC, Edina, Research Computing, DCC, Library, Research admins, Research Office, Research Software Engineers, Computing Officers, Digital Skills and Training
Low	**Monitor** (Minimum Effort) — Edinburgh Innovations / **Keep Informed** — Communications and Marketing

Digital Research Services (DRS)

- DataStore
- EDDIE
- Archer
- Eleanor
- Data Safe Haven
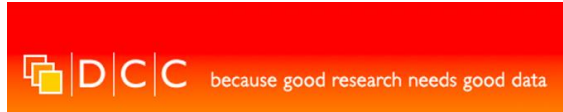- DataShare
- DataSync
- SubVersion /Gitlab
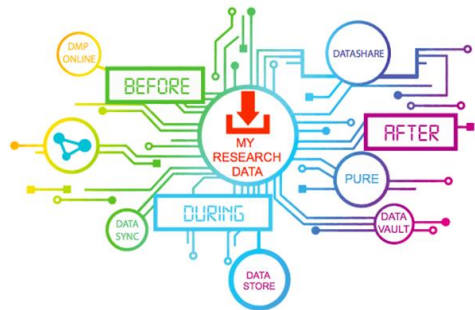- Digimap
- Digital Imaging

… and many others!

DRS Objectives

Digital Research Services is a programme to underpin and transform research with an integrated set of comprehensive Digital Research Services in partnership with DCC, Edina and Data Library, EPCC, IS Research Services, IS Research Data Service and Software Sustainability Institute (SSI).
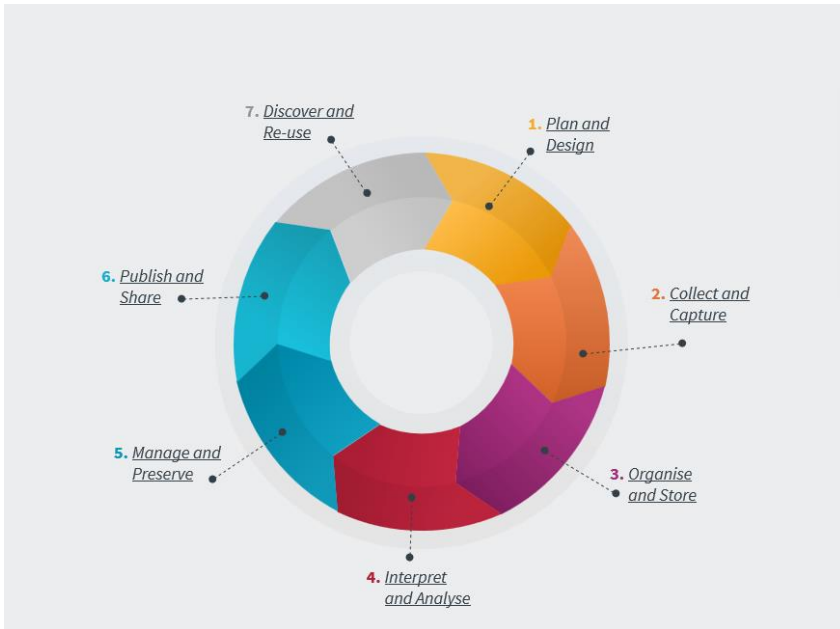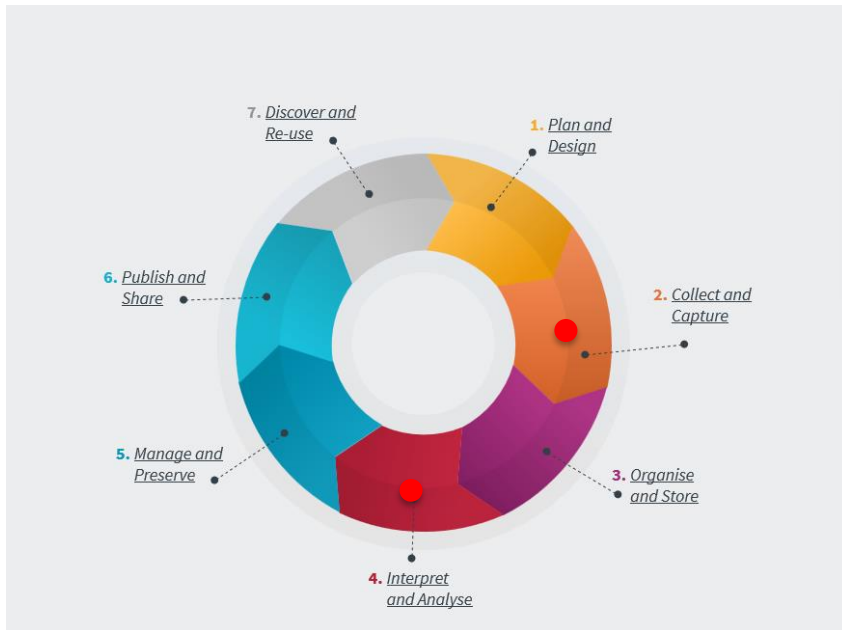
Towards the greater discoverability of digital research services at the University of Edinburgh
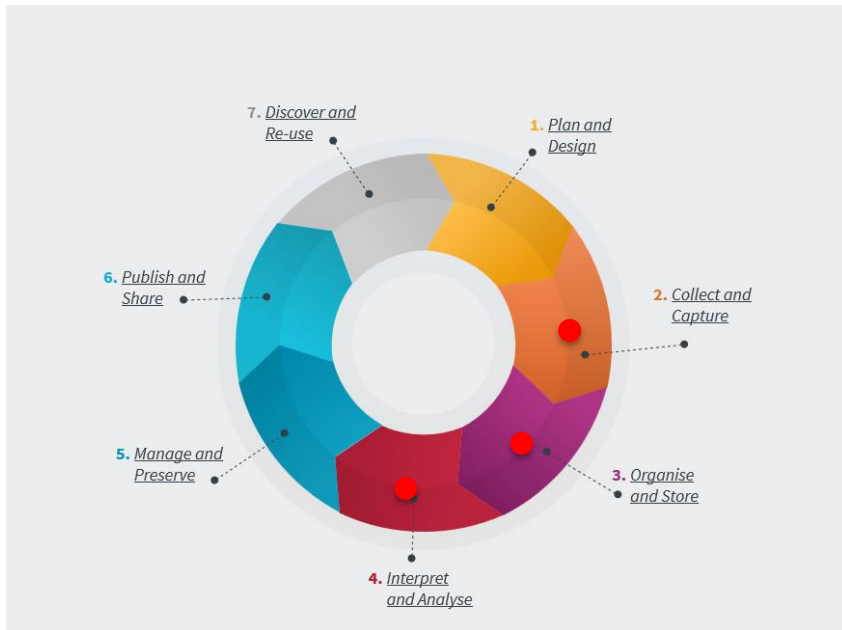
Digital Research Services

7. *Discover and Re-use*
1. *Plan and Design*
2. *Collect and Capture*
3. *Organise and Store*
4. *Interpret and Analyse*
5. *Manage and Preserve*
6. *Publish and Share*

Digital Research Services

7. *Discover and Re-use*

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Data Safe Haven

Digital Research Services

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DataStore

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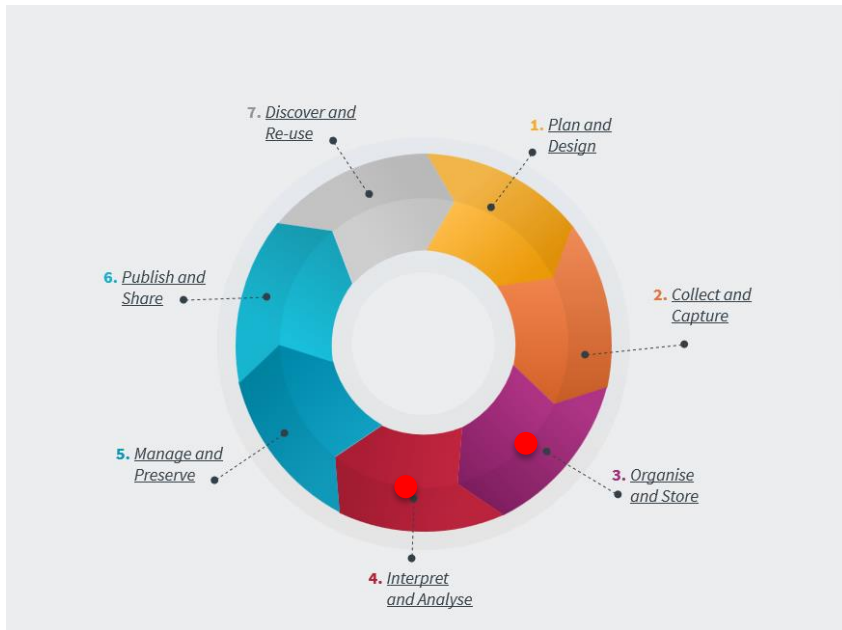
DataSync

Digital Research Services

DataShare

Digital Research Services

7. Discover and Re-use

1. Plan and Design

6. Publish and Share

2. Collect and Capture

5. Manage and Preserve

3. Organise and Store

4. Interpret and Analyse
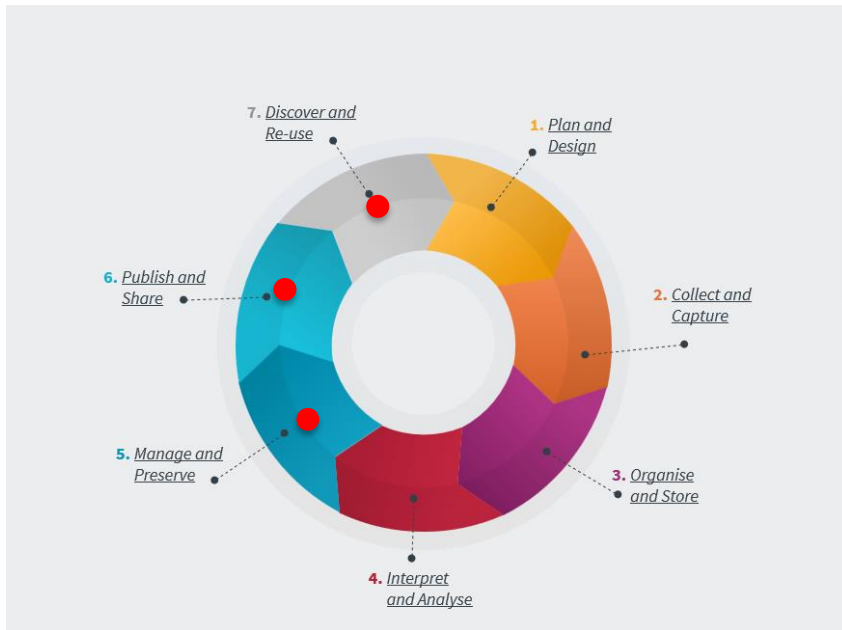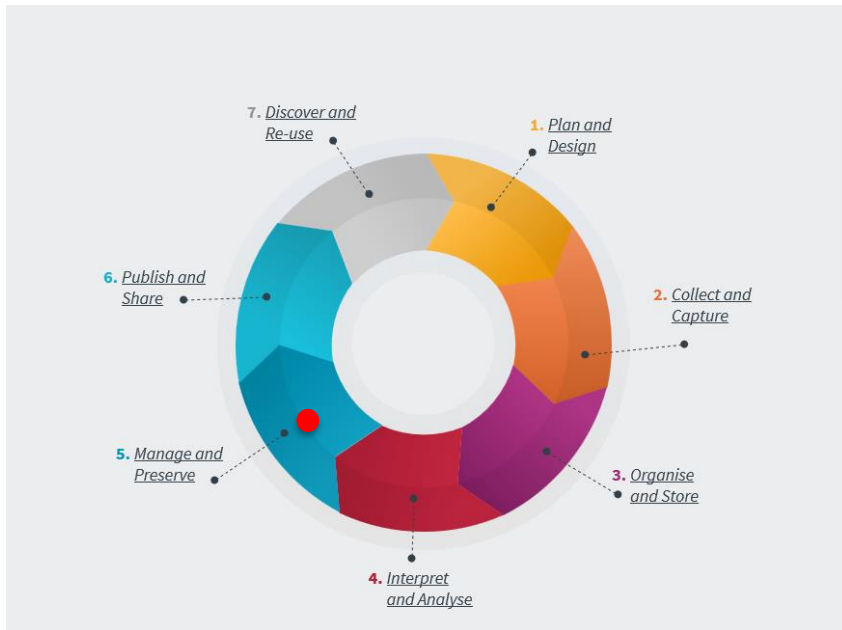
DataVault

Research Facilitators

Research community

Services and resources

Service Providers

Adapted from L. Otty

Thank you!

With thanks to Magdalena Getler,

Robin Rice and Lisa Otty

In collaboration with: