



# Libraries & Museums

## Introduction to University of St Andrews Open Research Roadmap (2022-2024)

### Open Research definition:

- The idea that scientific knowledge / scholarship of all kinds should be openly shared as early as possible for the benefit of everyone. The research process should be transparent and collaborative and enhance the reproducibility of research findings.
- In a European context the term 'Open Science' is more common, using 'science' in a broad sense. 'Open Scholarship' is also used as a broad term, as well as narrower terms such as open infrastructure and open data.

### Purpose of Roadmap

The University embraces open research practices as part of a vibrant and supportive [research culture](#). The Open Research Working Group (ORWG) remit is to consider our approach to the evolving open research environment, ensuring benefit to our researchers, the University, and the wider community, as well as delivering funder requirements. The purpose of an Open Research Roadmap is to set priorities, monitor progress against targets and enable change. A continual review process aims to respond to challenges and provide supporting mechanisms for our academic community.

### Background to Roadmap and review

University strategy<sup>1</sup> has a commitment to social responsibility and “to make our research findings widely available for local, national and global benefit”. An Open Access (OA) Policy has been in place since 2013, Research Data Management (RDM) Policy since 2014 and Principles on responsible metrics were published in 2019. A completely revised [Open access publications policy](#) has been launched for 2023.

An Open Research Roadmap was implemented in 2018 to identify, prioritise and co-ordinate policy development, investment in resources, training and skills, and changes in research practice to deliver the benefits of open research for the University and its researchers. It is intended as a living document, developed by ORWG and the wider institutional and academic community, overseen by Research Impact and Innovation Committee (RIIC) and owned by VP Research, Collections and Innovation.

Originally organised around 3 themes (Open research results and practice; Responsible use of research metrics; Citizen Science/Crowd-sourced research) we have now created a new Roadmap organised by the [8 ambitions of Open Science as defined by the EU](#) and [developed further by the League of European Research Libraries \(LERU\)](#). This will allow a more granular set of goals along with identification of additional resources and likely collaboration across the

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<sup>1</sup> The University Strategy 2022-2027 (Executive summary): <https://www.st-andrews.ac.uk/about/governance/university-strategy/executive-summary/>

University, for example where actions overlap with and may be taken forward by the University Research Culture Group and/or through development of the Digital Strategy.

### Open Research themes

The 8 themes are described in Table 1. We recognise that the full breadth of open research practices taking place across the University may not be captured here, such as School-level activities, grassroots networks or developments not requiring ORWG involvement. Some goals may span multiple themes, or may sit outside the 8 themes, such as the growing use of software and code. All have been allocated to one theme for the purpose of managing the Roadmap.

Table 1. The 8 ‘pillars’ of Open Science (themes for open research)

Eight themes/pillars	Definition and scope
Future of scholarly communication	Open Access publishing options and models, advocating for 100% immediate OA, supporting open infrastructure, ‘bibliodiversity’, equitable access to reading and publishing research outputs.
FAIR data (see appendix 1)	Open sharing of data underpinning publications, lower barriers to secondary research findings. Data should be <i>as open as possible as closed as necessary</i> , use of data access statements. We include software and code in this theme.
EOSC (European Open Science Cloud)	Interoperability of infrastructure and network of services
Education and skills	Data management practices, understanding rights and licences, digital skills training, following good research conduct
Research integrity	Open data enabling high quality research and a culture of transparency and accountability. Enabling reproducibility.
Rewards and evaluation	Concerned with redefining criteria for academic assessment, valuing individuality, recognising and valuing diverse contributions
Next-generation metrics	Principles of responsible use of metrics, consideration of alternative metrics, links to evaluation criteria and credit for research contributions
Citizen science	Informing and empowering the public, engaging with society

### Open Research goals

The revised goals and target dates have been developed and extended from the previous roadmap to reflect current and expected future practices and amended further following input from ORWG members. They take account of the external environment including research funder mandates, as well as our high level aims to encourage and facilitate open research to meet institutional objectives.

A summary list of the goals which we monitor and report on is listed in Table 2.

Table 2. Open Research Roadmap v2 – goals and target dates

	Open Science pillar	Goal	Target Date	Notes and references
1	Future of scholarly communication	Proportion of OA articles and proceedings greater than 90%	Annual	Measured by annual <a href="#">CWTS Leiden ranking</a> , which has transparent methodology.
2	Future of scholarly communication	100% immediate OA of articles for funder and institutional compliance	Quarterly	Reported externally to UKRI and Wellcome Trust, monitored for other major funders, reported internally against current “REF” requirements. New reporting methodology in development to align with new institutional OA policy.
3	Future of scholarly communication	Achieve high level of awareness of different models for OA monographs	31/12/2022 ongoing	Preparedness for UKRI OA Policy and next REF, as well as gaining benefits of new digital publishing opportunities and visibility for AHSS research.
4	Future of scholarly communication	Actively engaged with Scottish Universities OA Press (monographs)	31/12/2022 ongoing	L&M membership of SCURL Steering Committee. Possibility for engagement via Editorial Board.
5	Future of scholarly communication	Budget and services available to support open infrastructures for all types of OA publishing	31/12/2023	Focus on non-profit, scholar-led and new university presses in addition to commercial publishing. Promotion of our journal hosting as a core service.
6	Future of scholarly communication	Funding identified to support OA publishing costs for monographs and chapters	21/12/2022 ongoing	UKRI funds, grant funding, publisher deals covering BPCs / new community models (see also Goal 12)
7	Future of scholarly communication	Guidance available for OA for books & chapters through repository route	01/01/2024	Supports UKRI OA Policy, builds on rights retention, prepares for next REF.
8	Future of scholarly communication	Adopt Rights Retention Strategy or UKSCL model policy to support immediate OA via green route	01/12/2022 COMPLETE	Institutional IP and OA policies revised; aligned with UKRI requirements, based on RRS and with guidance from other examples in sector
9	Future of scholarly communication	All researchers have an ORCID and maintain ORCID profiles	Annual	Pure report and ORCID membership stats.
10	Future of scholarly communication	DOIs allocated to grey literature published by the University, on demand	31/06/2023	Paper to be provided on repository and hosting services with scope, costs and recommendations.
11	Future of scholarly communication	Support use and visibility of preprints	31/12/2022	Include encouragement in OA Policy, promote use of new Pure template.

12	Future of scholarly communication	Fund innovative OA models in support of a diverse open infrastructure and publishing ecosystem	01/12/2022	Review criteria of IOAF. Support new community models eg Opening the Future, Subscribe 2 Open
13	FAIR data	Achieve 90% open data for major funders UKRI, EU, Wellcome Trust, and 75% target for all data	31/12/2022 ongoing	Build on monitoring via Pure, include in quarterly School compliance reports.
14	FAIR data	Implement infrastructure to support long-term preservation of/access to, research data	31/12/2023	See Digital Preservation Policy and associated action plan.
15	FAIR data	Increase practice of sharing open software and code	31/12/2022 ongoing	Create new Pure template (COMPLETE), provide guidance and recommend technical standards.
16	FAIR data	Institutional research notebook software implemented and in use by research groups	01/06/2023	Review LabArchives pilot, develop support services.
17	FAIR data	Explore need for digital discovery and analysis tools and skills e.g. text/data mining, data visualisation, for existing reusable datasets	01/12/2023	Align with Research Culture action plan, Integrity proposals, Digital Research Strategy.
18	EOSC (European Open Science Cloud)	Open Science practices expressed in EU grant applications	01/12/2023	Check snapshot of proposals and DMPs, ensure guidance available.
19	Education and skills	DMPs shared as exemplars	01/06/2023	Potential triggers via Finance Improvements Project.
20	Education and skills	Range of RDM training modules delivered twice per semester	01/09/2023	Collaborating with RIS/OSDS and others on Research Excellence Portfolio
21	Education and skills	Develop and deliver workshops on OA benefits and models - 1 per semester	01/09/2023	Collaborating with RIS/OSDS and others on Research Excellence Portfolio.
22	Education and skills	Promote University's Principles on responsible use of metrics	30/06/2023	Included in Research Culture action plan.
23	Research integrity	DMPs required for all PGRs, project "DMP4PGRs" implemented	01/05/2023	Proposal approved, project initiated Autumn 2022, to be delivered by May 2023.
24	Research integrity	Target of 50% of required DMPs are recorded in MMS by PGRs after 1 year	01/04/2024	External dependencies including checks by PhD Supervisors. Will do mid-year review Oct 2023.
25	Research integrity	Join UK Reproducibility Network	30/06/2023	Being taken forward by Head of Research Integrity and VPRCI via University Research Culture group.

26	Rewards and evaluation	KPIs, academic promotion and recruitment guidelines comply with responsible principles	31/12/2023	Included in Research Culture action plan.
27	Rewards and evaluation	Staff at all levels involved in research assessment understand limitations of research metrics and can use them responsibly	31/12/2023	Included in Research Culture action plan. Bibliometrics team increasing outreach with DoR/HoS to include responsible use of indicators.
28	Rewards and evaluation	Use of CREDIT standard for author contribution adopted, where appropriate to discipline <a href="http://credit.niso.org/">http://credit.niso.org/</a>	31/12/2023	Included in Research Culture action plan, Good research practice guidance.
29	Rewards and evaluation	Embed responsible use of metrics in Research Culture vision	30/06/2022	Included in Research Culture vision and mapping doc.
30	Next-generation metrics	Extend use and awareness of altmetrics and usage statistics, in addition to citations and other metrics (targets to be developed)	31/12/2023	Bibliometrics outreach / web info
31	Citizen science	Liaise with Head of Engagement with Research to promote open research related to citizen science outreach	31/12/2023	Maintain links and awareness, including outreach activities supported by Impact and Engagement with Research teams.

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## APPENDIX 1: FAIR data

As FAIR data becomes increasingly important, we seek to further clarify the practical actions necessary to support widespread implementation. Definitions provided in Table 3.

<b>FAIR data</b>	<b>What</b>	<b>How</b>
<b>Findable</b>	making research output or the 'data object' discoverable by the wider academic community and the public, support easy citation	Include good descriptive metadata [eg Title, creators, description, keywords] and obtain a DOI
<b>Accessible</b>	using unique identifiers, metadata and a clear use of language and access protocols	Ensure metadata is open, always available and points to the resource/files
<b>Interoperable</b>	applying systems and standards to encode and exchange data and metadata	Metadata meets technical standards, uses controlled vocabularies, open formats and is machine-readable
<b>Reusable</b>	enabling the repurposing of research outputs to maximise their research potential	Use standard licences to enable reuse
Alternatively 6 'FAIRification' practices – see <a href="https://www.howtofair.dk/how-to-fair/">https://www.howtofair.dk/how-to-fair/</a>	<ol style="list-style-type: none"> <li>1. Documentation</li> <li>2. File formats</li> <li>3. Metadata</li> <li>4. Access to data</li> <li>5. Persistent identifiers</li> <li>6. Data licences</li> </ol>	