
# Recognising and rewarding open research: implementation guide

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# Introduction

The implementation guide provides detailed guidance for institutions on implementing effective recognition and reward for open research in researcher assessment. It can be used by a group of stakeholders to develop a shared understanding of the rationale for recognising and rewarding open research practice and to explore different aspects of implementation in greater depth, in order to support informed planning and implementation. It can be consulted in conjunction with the maturity framework and as part of an institutional self-assessment exercise.

An executive summary provides a high-level overview of the context and rationale for strategic action and the main areas of implementation covered by the guide. This is a a useful one-pager for those who want a summary of the essentials.

The introductory section, Why recognise and reward open research practice? explains the rationale for strategic action with reference to the wider sector context in more detail. This is a more developed treatment of the subject and can be used by members of a stakeholder group to establish a shared understanding and sense of purpose.

The nine sections mapped to the action areas of the maturity framework are designed to enable members of the stakeholder group to develop a more in-depth understanding of the key areas in which action may be required, and to create a practical plan of action to develop institutional maturity. Links to case studies illustrating different aspects of implementation are provided.

A Glossary of key terms is also included.

Each of the nine main sections of the guide follows a standard format:

- **Why is this important?**
- **Maturity scale**: the maturity scale for this action area
- **Progress actions**: suggested key actions to move from one level of the maturity scale to the next
- **Main areas of activity**: in-depth guidance
- **Case studies**: links to case studies illustrating different aspects of implementation at UK institutions.

# Executive summary

The importance and benefits of open research are widely accepted. Many institutions explicitly subscribe to open research principles in support of greater transparency and reproducibility. Institutional policies for open access to publications and research data management and sharing are standard and reflect expectations across the sector. Policy drivers and compliance requirements related to open research are set to increase. But institutional commitments and open research policies are relatively unintegrated into research strategy, planning and management, and currently have limited influence on the behaviour of individual researchers. Systems of recognition and reward that operate in the recruitment, probation, promotion and appraisal of researchers can be powerful engines of behavioural change, but at present they do not effectively incentivise or reward open research practice.

Open research practices should be a part of how researchers are assessed, because a researcher who uses such practices:

- better demonstrates, and enables verification of, the quality of their research;
- facilitates re-use of the products of their research, in this way maximising their potential value and impact;
- is able to provide a more representative picture of their research activities and outputs, enabling a more informed assessment of their capacity as a researcher.

Operationalisation of open research incentives and expectations in the researcher assessment activities of research-performing organisations will signal that open practices are considered to be an essential part of how research is carried out. It will power the adoption of open research practices by researchers and lead to improvements in research integrity, quality and impact. Recognition of open research activities and outputs will also better reflect the collaborative nature of much research, and give more visibility to those who contribute to research, such as data scientists, technicians and research software engineers. This will support a more diverse and inclusive research culture.

With momentum for research assessment reform building globally, there is an opportunity to integrate open research into revised researcher assessment frameworks and practices. Since the publication of the San Francisco Declaration on Research Assessment (DORA) in 2013, there has been an evolution in the research assessment reform agenda from an initial focus on responsible use of publication metrics towards a wider responsible research assessment framework. This has entailed increasing attention to elements related to research culture, research integrity and reproducibility, as represented most fully in the Agreement on Reforming Research Assessment published in 2022 by the Coalition for Advancing Research Assessment (CoARA).

This broader agenda is shaping the national research assessment framework in the UK as in other countries. The People, Culture and Environment element of the next Research Excellence Framework (REF) will include a greater emphasis on elements of research culture including open research. This is indicative of the direction of travel in the sector towards a more instrumental model of research assessment,

which shapes the norms and expectations associated with good research practice. Open research is an integral feature of good research practice as defined by this model.

Institutions therefore need to start developing researcher assessment policies to integrate recognition and reward for open research. This work will involve a number of challenges of implementation, which can be characterised at four levels:

- **political**: getting buy-in from institutional leaders and managers and key stakeholders in professional services to support policy adoption and implementation across relevant procedures;
- **cultural**: securing assent from members of the research community in their capacity as both assessors and subjects of research assessment to the inclusion of open research in research assessment, and bringing about changes in practice;
- **practical**: defining open research in such a way that instances of it can be demonstrated, identified, validated, and qualitatively evaluated within the context of an overall assessment, and providing the training and guidance that enables researchers and assessors to use the criteria effectively;
- **operational**: implementing the changes to policies and procedures and underpinning systems, processes and support, creating and delivering guidance and training, and monitoring and managing compliance with implemented policies.

The implementation guide addresses these aspects of implementation, with an emphasis on the political and cultural aspects in the earlier sections moving into the practical and operational aspects in the later sections.

# Why recognise and reward open research practice?

This introductory section explains the rationale for recognising and rewarding open research in the assessment of researchers, with reference to the open research and responsible research assessment agendas that have evolved in recent years. It can be used as a reference text for a group of stakeholders undertaking a self-assessment exercise using the OR4 maturity framework, and to inform engagement in support of planned action, such as the development of business cases, consultation or co-development with stakeholders, and communications with the wider research community. It can serve to establish a shared understanding of open research and responsible research assessment, and an awareness of the drivers for strategic action in these areas in the higher education and research sector.

## Why should open research be part of researcher assessment?

There are key reasons why open research practices are important in the context of researcher assessment:

- Open practices support and demonstrate research integrity and quality, by providing transparency about research methods and evidence, and enabling independent verification or reproduction of findings
- Open practices generate a variety of outputs in addition to research publications, such as datasets, software and digital resources, and facilitate their re-use, so maximising opportunities to generate further value
- The broader range of activities and outputs associated with open research practices enables a more rounded assessment of a researcher's activities and outputs than is possible where publications are the primary or exclusive focus of assessment.

A researcher who uses open research practices better demonstrates and enables verification of the quality of their research, maximises the potential of their research to generate value, and is able to provide a more representative picture of the totality of their research and related activities.

Operationalisation of open research incentives and expectations in the researcher assessment activities of research-performing organisations will signal that open practices are considered to be an essential part of how research is carried out. It will power the adoption of open research practices by researchers and lead to improvements in research integrity, quality and impact.

**Open research and its benefits**

UKRI describes open research in the following terms:

> Open research, also widely referred to as open science, relates to how research is performed and how knowledge is shared based on the principle that research should be as open as possible. It also enables research to take advantage of digital technology.
>
> Transparency, openness, verification and reproducibility are important features of research and innovation. Open research helps to support and uphold these features across the whole lifecycle of research – improving public value, research integrity, reuse and innovation.
>
> Open research also helps to support collaboration within and across disciplines. It is integral to a healthy research culture and environment.

Open research can be situated in the context of a global discourse about open knowledge and openness in academic practice (which often uses the term open science). In the open knowledge paradigm, 'openness' is integral to the practices by which research is conducted, communicated, evaluated, validated and instrumentalised. Open research practice is held to have a direct relationship to research integrity (through transparency of methods and outputs), research quality (through the use of evidentiary and reproducible practices), sustainability (through use of appropriate standards and formats, preservation infrastructure, and persistent identifiers), and reach and impact (through the accessibility and re-usability of outputs).

## Open research principles are widely accepted but not fully integrated into research practice

The principles of open research have gained widespread acceptance in recent years, and the importance of openness in research is acknowledged by governments, funders, and research-performing institutions. The 2021 adoption by the UNESCO member states of its Recommendation on Open Science marks a significant milestone in this respect. Many public research funders and most research institutions in the UK have established policies on open access to research publications and the management and sharing of research data, which are fundamental open research practices. More recently, some institutions have adopted statements in support of open research, endorsing the principles and aims of open research and encouraging use of relevant open research practices.

But open research policies and statements are as yet relatively unintegrated into institutional research strategy and planning and actual research practice. Beyond high levels of compliance with open access mandates, driven in large part by the requirements of the UK's Research Excellence Framework (REF), there is little evidence of widespread open research practice. Rates of effective data sharing remain low.[1]

[1] See e.g.: Gabelica, M., Bojčić, R. and Puljak, L. (2022), 'Many researchers were not compliant with their published data sharing statement: a mixed-methods study'. Journal of Clinical Epidemiology, 150: 33-41. https://doi.org/10.1016/j.jclinepi.2022.05.019; Lucas-Dominguez, R. et al (2021), 'The sharing of research data facing the COVID-19 pandemic'. Scientometrics (2021). https://doi.org/10.1007/s11192-021-03971-6.

Open research practices are for the most part not incentivised and rewarded; nor, with the exception of open access publication, are they systematically monitored or enforced, either by institutions or by the funders of research.

## Systems of reward and recognition can drive changes in researcher behaviour and academic cultures

At present, very few institutional recruitment, promotion, probation and appraisal frameworks include reference to open research criteria or outputs other than research publications; standards and practices for evidencing a track record in open research are not well-established; and there is a lack of guidance, training and support related to open research for researchers and staff involved in assessment. In consequence, use of open research practices is rarely evidenced or considered in the formal assessment activities, and is in large part unmonitored by institutions.[2]

With momentum for research assessment reform building globally, there is an opportunity to integrate open research into revised researcher assessment frameworks and practices. Universities play a critical role in the systems of academic reward and recognition. It is in their power to include open research criteria in their recruitment specifications, probation objectives and promotion frameworks, performance and development review processes, and research planning activities. By this means researchers can be incentivised and supported to build a track record in open research and to present that track record in an assessment activity, while assessment practices can recognise and give credit for a record of open research practice. This will drive increased adoption of open research practices, and, in time, bear fruit in the recruitment and promotion of staff who are recognised for working in ways that increase the integrity, quality and impact of the institution's research output.

## Open research and research assessment reform

The history of research assessment reform can be characterised in terms of an evolution from an agenda focused almost exclusively on the use of publication-based metrics towards a broader framework of responsible research assessment (Figure 1). This broader, more instrumental agenda considers research assessment as a means of enabling the best researchers to flourish, promoting diversity and inclusion, and supporting the production of high-quality research – in short, as a means to engineer research culture. Within this agenda, there has been growing attention to the role of open research practices in relation to research assessment.

Although the San Francisco Declaration on Research Assessment (DORA, 2013), the founding text of research assessment reform, was primarily concerned with research publications and related metrics, its second recommendation adumbrates a broader assessment agenda:

[2] See: Pontika, N. et al. (2021), 'ON-MERRIT D6.1 Investigating institutional structures of reward & recognition in Open Science & RRI (1.0)'. Zenodo. https://doi.org/10.5281/zenodo.5552197; Khan, H. et al. (2022), 'Open science failed to penetrate academic hiring practices: a cross-sectional study'. Journal of Clinical Epidemiology, 144: 136-143. https://doi.org/10.1016/j.jclinepi.2021.12.003.

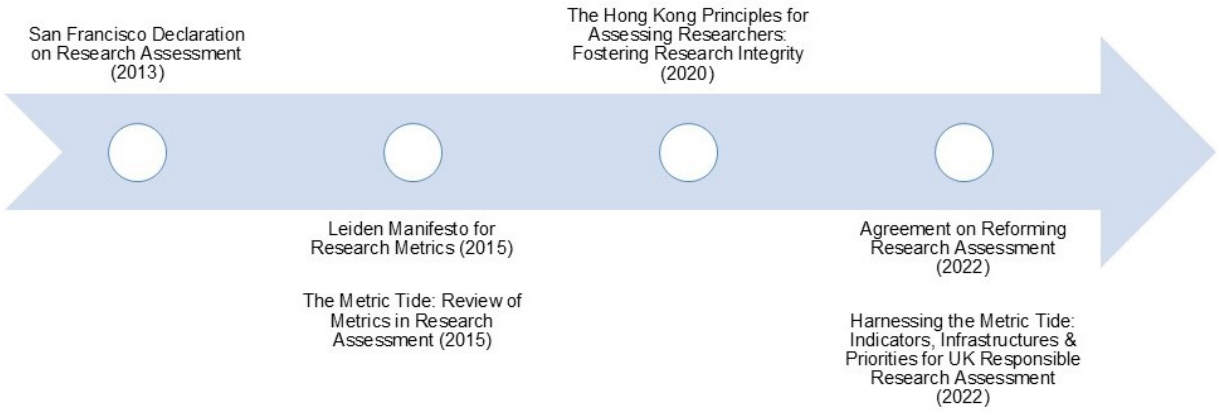


Figure 1: Milestones in the history of research assessment reform

> For the purposes of research assessment, consider the value and impact of all research outputs (including datasets and software) in addition to research publications, and consider a broad range of impact measures including qualitative indicators of research impact, such as influence on policy and practice.

While DORA mentions datasets and software as examples of other research outputs, it lacks the broader concept of open research that has developed in the years since its publication, and does not provide guidance on how other types of output might be included and assessed. The Leiden Manifesto and the Metric Tide report (both published in 2015) were similarly focused on the use of publication metrics.

With the more recent emergence of a broader framework of responsible research assessment,[3] there has been increased attention to open research. A white paper from the League of European Universities (LERU) published in 2018 recommended that universities 'endeavour to integrate Open Science dimensions in their HR and career frameworks as an explicit element in recruitment, performance evaluation and career advancement policies'.[4] Also in 2018, the European Universities Association published the 'EUA Roadmap on Research Assessment in the Transition to Open Science', which argued:

> Today, research assessment and reward systems generally do not reflect important Open Science contributions, such as curating and sharing datasets and collections, documenting and sharing software (source code), or devoting time and energy to high-quality peer review.

[3] 'The focus on responsible metrics has now been folded into the broader framework of responsible research assessment (RRA). This can be defined as "an umbrella term for approaches to assessment which incentivise, reflect and reward the plural characteristics of high-quality research, in support of diverse and inclusive research cultures".' Curry, S., Gadd, E. and Wilsdon J. (2022), 'Harnessing the metric tide: indicators, infrastructures and priorities for responsible research assessment in the UK'. Research on Research Institute. https://doi.org/10.6084/m9.figshare.21701624.v2, p. 23. The quotation refers to a paper from the Research on Research Institute that is perhaps the first to articulate this broader framework. See Curry, S. et al. (2020). The changing role of funders in responsible research assessment: progress, obstacles and the way ahead (RoRI Working Paper No.3). 10.6084/m9.figshare.13227914.v2. Research on Research Institute. https://doi.org/10.6084/m9.figshare.13227914.v2

[4] Ayris, P. et al (2018), 'Open Science and its role in universities: a roadmap for cultural change'. League of European Research Universities. https://www.leru.org/publications/open-science-and-its-role-in-universities-a-roadmap-for-cultural-change.

> New approaches to research assessment that take into account Open Science contributions need to be identified and thoroughly discussed by academic communities.[5]

The 'Hong Kong Principles for assessing researchers' (2020) call for assessment to develop a much broader picture of a researcher's contributions to research and society. It identifies as one of its five principles to 'Reward the practice of open science (open research)', and it makes a strong connection between research transparency and research integrity.[6] The UNESCO Recommendation on Open Science (2021) also enjoins member states to remove barriers to open science relating to research and career evaluation and awards systems, stating: 'Assessment of scientific contribution and career progression rewarding good open science practices is needed for operationalization of open science'.

In the Agreement on Reforming Research Assessment, published in 2022 by the Coalition for Advancing Research Assessment (CoARA), 'openness' is recognised as being integral to the practices by which research is conducted, communicated and validated, and is identified as a key dimension of research assessment. Under the 'Quality and impact' principle of research assessment it states: 'Openness of research, and results that are verifiable and reproducible where applicable, strongly contribute to quality'. Under the principle 'Diversity, inclusiveness and collaboration', signatories agree to:

> Consider… the full range of research outputs, such as scientific publications, data, software, models, methods, theories, algorithms, protocols, workflows, exhibitions, strategies, policy contributions, etc., and reward research behaviour underpinning open science practices such as early knowledge and data sharing as well as open collaboration within science and collaboration with societal actors where appropriate.

## National and institutional assessment practices need to develop

The greater emphasis on open research in the research assessment reform agenda is relatively recent, and national and institutional research assessment policies have so far reflected a prevailing focus on publications and the responsible use of publication metrics. In a survey undertaken by the OR4 project in 2023, 44 or 73% of 60 UK institutions stated that they had a responsible research assessment statement or policy. The majority of these were focused on the responsible use of publication metrics.[7] In scope and terminology many of these statements follow and reference DORA and the Leiden Manifesto.

The almost exclusive focus on the assessment of research publications is understandable, given their prominence in the systems of academic recognition and reward. In REF 2021, of 185,353 outputs submitted, 180,509 or 97.4% fell into the main academic publications categories A-E (including authored and edited books, book chapters, journal articles and conference contributions). 154,826 outputs or 83.5% of the total were journal articles. The number of research data sets and databases submitted was 31; the number of software outputs was 11 (Figure 2).[8]

[5] European Universities Association (2018), 'EUA Roadmap on Research Assessment in the Transition to Open Science'. https://eua.eu/resources/publications/316:eua-roadmap-on-research-assessment-in-the-transition-to-open-science.html.

[6] Moher, D. et al. (2020). 'The Hong Kong Principles for assessing researchers: Fostering research integrity'. PLoS Biol 18(7): e3000737. https://doi.org/10.1371/journal.pbio.3000737.

[7] Barnett, J. at al. (2024). 'OR4 Research Assessment Survey Report'. Working Paper No 5. https://doi.org/10.31219/osf.io/z52cn.

[8] REF 2021 Submitted outputs' details. https://results2021.ref.ac.uk/outputs.

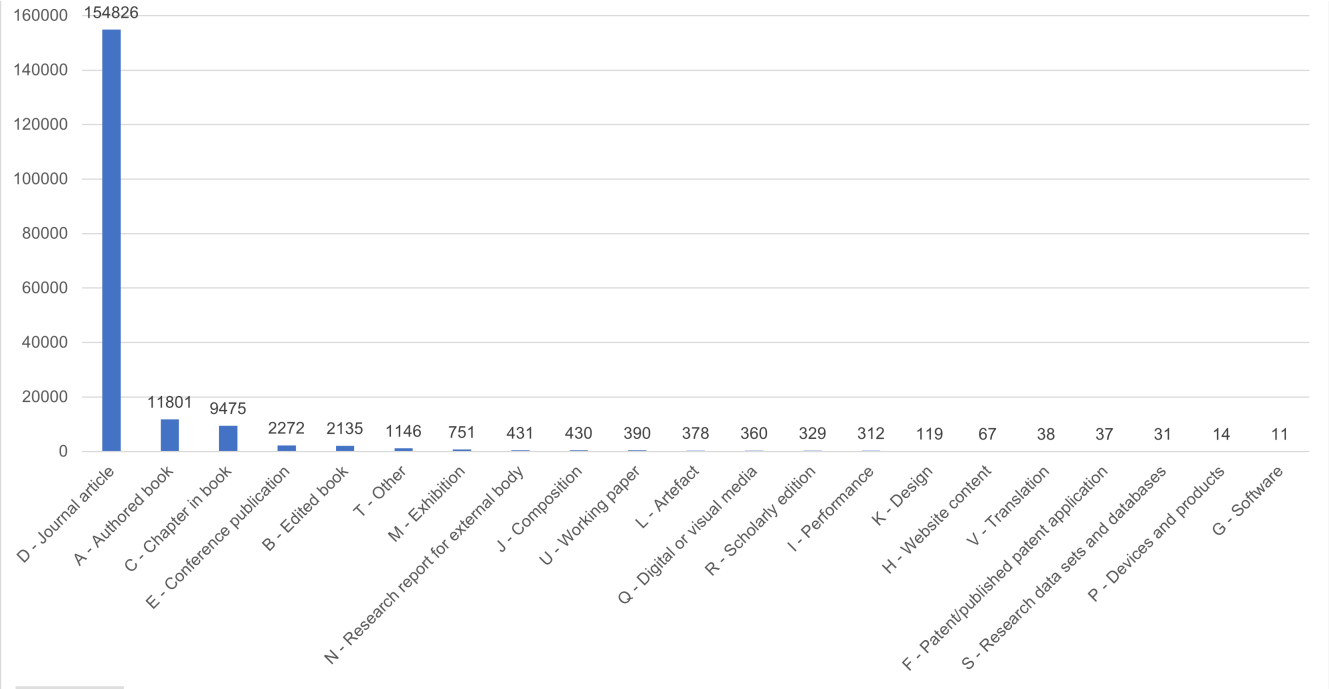


Figure 2: REF 2021 submitted outputs by output type

This heavily skewed distribution is the focus of the Hidden REF initiative, which emerged in the runup to the 2021 REF. This campaign highlighted the lack of representation in submissions for non-academic research contributors (such as data scientists, technicians and research software engineers) and for 'non-traditional' outputs (i.e. other than publications). Now that the UK is on track for REF 2029, the Hidden REF is campaigning on a 5% manifesto: a target for HEIs to submit at least 5% of non-traditional research outputs. This will be a challenging target to meet, given that in REF 2021 only 2.4% of non-traditional outputs were submitted.

But the landscape is beginning to change, and institutions will need to develop policies that better align to the principles of responsible research assessment and that are more representative of the full diversity of research and research-related activities and outputs.

## Assessment should recognise all contributions to research

Contribution to open research should be recognised and rewarded wherever and by whomever it is made. Institutional policies and practices should be designed inclusively and should recognise the collaborative nature of much research.

As the Hidden REF campaign has highlighted, much research is collaborative in nature and is contributed to and enabled by people in research-performing organisations who are not defined as academic researchers: data scientists, technicians, research software engineers, librarians and others. These contributory and enabling roles are often obscured in the reporting and assessment of research, given the

prevailing focus on the publication as the representative research output, and on the academic researcher as the 'author' of the research.

The non-traditional outputs which lack visibility within systems of research assessment are also those to which non-academic staff typically most contribute, and as they are rarely named in publications, their role is often occluded in the formal reporting of research and its assessment. If non-traditional/open research outputs such as datasets and software are more visible in the reporting and assessment of research, the hidden contributors to research are also made more visible, and can be better recognised and rewarded in systems of employee assessment. Better recognition of contribution to research also supports a more diverse and inclusive research culture, and insitutional policies should be designed to enable appropriate recognition of contributions to research by non-academic staff.

## The changing national and international research assessment environment

In comparison to previous national assessment exercises, REF 2029 places greater emphasis on institutional research culture, including use of open research practices. Institutions can provide evidence of this in the People, Culture and Environment element, while the element Contribution to Knowledge and Understanding enables a greater diversity of research activities and outputs to be evidenced.[9]

As the national research assessment framework progressively assimilates open research objectives and assessment criteria, institutions will be obliged to conform, and to integrate open research into their own policies, systems and processes. The greater emphasis on open research in the 2029 REF is consistent with international developments, where other national research environments are also beginning to demonstrate greater alignment to the principles embodied in the Agreement on Reforming Research Assessment, and to identify open research as an important element of incentive and reward systems.

**Open research in other national research assessment frameworks**

- In the Netherlands, a 2020 report by the National Programme on Open Science argued that reform was needed on three levels: at the level of national assessment, at the institutional level, and at the level of funding agencies. The roadmap for the Dutch Recognition and Rewards Programme identifies open science as a priority, and aims to 'clarify how activities relating to open science and open education will be considered and/or prioritised as a topic of discussion in the development, assessment, appointment and promotion of staff'.[10] Funding has since been ringfenced by the Dutch Research Council (NWO) to support implementation and stimulation of open science culture and practices.
- In 2021 Universities Norway published NOR-CAM, a national research assessment framework that integrates open science principles in the assessment of academic results, activities and competencies. NOR-CAM was developed from the Open Science Career Assessment Matrix (OS-CAM) proposed by the EU Working Group on Rewards under Open Science in 2017.[11]
- The Irish National Action Plan for Open Research published in 2022 calls for an alignment of

[9] Research England (2023), 'Research Excellence Framework 2028: Initial decisions and issues for further consultation'. https://www.ukri.org/publications/ref2028-initial-decisions-and-issues-for-further-consultation/.

> research assessment with the principles of open research at both national and institutional level as part of action to establish a culture of open research, and proposes among other actions adoption of a modified OS-CAM model to the national context.[12]

## Challenges of including open research in researcher assessment

Ensuring the meaningful inclusion of open research objectives in institutional researcher assessment and aligned research planning activities at all levels in an institution is a long-term challenge requiring a sustained effort of leadership and co-ordinated activity. Challenges can be summarised as political, cultural, practical and operational.

### Political

There is substantial institutional investment in the prevailing publication-based model of research assessment. Institutional research KPIs and research elements of league table rankings are largely defined by publication metrics. Not all research leaders, managers, and researchers will agree that use of open research practices is a relevant criterion of research assessment, and securing buy-in to support policy adoption and implementation across relevant procedures may not be straightforward.

### Cultural

There will be similar challenges securing engagement and bringing about changes in practice among members of the research community at large, in their capacity as both assessors and subjects of research assessment. Many will not have fully integrated open research practices into their working methods and may have concerns they would be disadvantaged. Care will need to be taken that where open research criteria are introduced in assessment practices their use is fair and equitable. Ability to evidence open research practice will depend on the discipline and type of research, and the background and career stage of a researcher. Researchers may have lacked the training, means or opportunity to use open research practices. All of these factors will necessitate the provision of guidance, training and support in the context of sustained activity to develop and enable a culture of open research practice.

[12]Hans de Jonge (2023), 'Open science and recognition & rewards: what's the link between them?' Recognition & Rewards: Embrace the Impact. https://recognitionrewardsmagazine.nl/2023/open-science/.

[12]Working Group on Rewards under Open Science (2017), 'Evaluation of research careers fully acknowledging Open Science practices'. https://data.europa.eu/doi/10.2777/75255.

[12]NORF (2022). National Action Plan for Open Research. https://doi.org/10.7486/DRI.ff36jz222.

### Practical

The institution will need an effective operating definition of open research. Researchers and those involved in the assessment of researchers will need to be equipped to identify activities and outputs that fall under that definition, to make an assessment of the degree to which an activity or output fulfils qualifying criteria, and to appraise the value of the activity or output within the context of the assessment as a whole. Each of these requirements presents its own challenges. Many academics may struggle to identify open outputs, or fail to appreciate the difference between, say, a dataset that is published on a project website without a licence and one that has been deposited in a data repository under an open licence and assigned a DOI.

It is also the case that for many open research outputs there is no pre-publication peer review, and standards of assessment may be difficult to define and apply across a variety of outputs, even of the same type, meaning that outputs often lack markers of certification. It is also often difficult to obtain reliable, comparable quantitative information about the citation and use of many open research outputs, although a number of initiatives are addressing the collection and use of open research indicators and metrics.

### Operational

There will be the complex work of implementing changes to policies and procedures, and underpinning systems, processes and support, creating and delivering guidance and training, monitoring compliance with implemented policies and taking follow-up action as required. This may entail development of or addition to existing systems and processes. Systems for management and assessment of research are based in large part on research publications, which are well-defined entities that support citation, quantification and comparison. Mature infrastructure, systems and processes facilitate their dissemination, and the collection and processing of information about them. Models for the integration of open research into institutional research assessment and research planning are yet to be established; but if research assessment is to accommodate a wider range of activities and outputs, this will introduce complexity and additional operational demand.

The OR4 implementation guide addresses these aspects of implementation, with an emphasis on the political and cultural aspects in the earlier sections moving into the practical and operational aspects in the later sections.

# 1. Institutional commitment

> Does your institution make public commitments to the principles and aims of open research and responsible research assessment, which are aligned to the direction of travel in the sector and supported by effective action?

## Why is this important?

- Expressions of institutional commitment can send a strong message that open research and responsible research assessment are matters of strategic importance to the institution and its leadership.
- The process of consulting on and formulating a statement of commitment can engage key stakeholders and create a shared sense of purpose and strategic direction, providing a foundation for effective action.
- The institution can ensure that recognition and reward for open research is within the scope of research assessment reform and that where strategic action on open research and research assessment reform are separately undertaken, activity leads/groups are agreed on common objectives and co-ordinated in their activities.
- Public alignment to influential statements such as the UNESCO Recommendation on Open Science, DORA and the Agreement on Advancing Research Assessment signals that the necessity for cultural change is widely accepted in the sector and that the institution and its members must adapt. Membership of CoARA provides access to working groups that can support sharing of good practice and implementation.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| There are no public institutional commitments to open research and responsible research assessment. | There are public institutional commitments to open research and responsible research assessment but little or no recognition of open research in research assessment practice. | There are public institutional commitments to open research and responsible research assessment. There is an explicit commitment to recognise and reward open research in research assessment practice. | Public open research and responsible research assessment commitments are well-integrated into recognition and reward policies and procedures. There is a strong shared understanding of how open research and responsible research assessment contribute to institutional research strategy and overall mission. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Adopt and publish an open research statement.
- Adopt and publish a commitment to the implementation of responsible research assessment. In so far as it relates to open research, it could be linked to the open research statement.
- Sign the Agreement on Reforming Research Assessment and join the Coalition on Advancing Research Assessment (CoARA) and communicate this within the institution.

### Emerging to Evolving

- Initiate action to implement commitments, e.g. by appointment of senior strategic leads for open research and responsible research assessment, development and publication of action plans, and engagement of key stakeholders.
- Include a commitment to recognise and reward open research practice within institutional research assessment.

- Ensure senior leads and stakeholder groups (where they have been established) are co-ordinated towards objectives for recognition and reward for open research.
- Demonstrate that progress has been made in implementing commitments, e.g. by publishing updates against action plan milestones.

### Evolving to Sustained

- Ensure that commitments are well-integrated into relevant policies, procedures, assessment, guidance and training, and that they are widely understood and supported by research leaders and managers.
- Ensure that activities and communications relating to institutional research strategy, environment and culture are aligned to and reference institutional commitments.

## Main areas of activity

> 'The first step the University undertook…was to develop an Open Research Statement and a Responsible Use of Metrics Statement. The University has been a signatory of DORA since the academic year 2020/21 and has had an Open Access mandate since 2016. However, it was recognised that more was needed to embed open research practices in the University and that a stronger institutional commitment was necessary… In addition to these statements of intent, we wanted to support and develop an understanding of open research in the institution. Using some funding from UKRI's Enhancing Research Culture grant, the Research and Scholarly Communication Team (Libraries and Learner Development) led a small project to create training material to support staff and PGR understanding of open research. Our aim was to raise awareness, develop open research knowledge and skills in our research community, and align these with the University's Open Research and Responsible Metrics statements.' University of Sunderland

### Open research statement

Increasing numbers of UK universities, and indeed institutions globally, are adopting public statements of commitment to the principles and aims of open research.[1] Their function is to provide the strategic commitment to develop a culture of open research and the high-level framework under which activity and policies (such as those on open access and data sharing) can sit. The statement should be in alignment with (and may reference) the University's research strategy. Reference to statements such as the UKRI position on open research and the UNESCO Recommendation on Open Science can serve to emphasise alignment to the sector.

[1] Sheppard, N. (2020, since updated), 'Open access is not enough: reproducible science, research and scholarship'. UKCORR. Blogpost. https://www.ukcorr.org/2020/12/02/open-access-is-not-enough-reproducible-science-research-and-scholarship/.

The statement should include a commitment to recognise and reward open research practice, and reference an institutional statement or policy on responsible research assessment where this exists.

Members of the institution formulating this commitment will need to reflect on how open research is understood within the context of the institutional mission, and how it contributes to the advancement of that mission.

### Research assessment reform

With momentum for research assessment reform building globally, many institutions are reviewing or planning to review their research assessment policies and procedures. This may entail publishing or refreshing a statement of commitment to the agenda of research assessment reform.

Many institutions have already signed the San Francisco Declaration on Research Assessment (DORA) and will have made a commitment to improve research and researcher assessment within their institutions. As of 7th November 2022, DORA asked signatory institutions to 'share a public statement detailing their commitment to DORA and responsible research assessment to their communities'.[2]

Whether or not institutions are DORA signatories, there is a case for signing the Agreement on Reforming Assessment to begin the process of establishing specific commitments and a timetable of reform. Signatories commit to develop and share with CoARA within one year of signing the Agreement an action plan for reviewing or developing criteria, tools and processes in line with the core Commitments set out in the Agreement. They also agree to regularly demonstrate progress against this action plan, with a touch point within five years of signing the Agreement.

Institutions that receive funding from the Wellcome Trust are also required to publish on their website a commitment to the use of responsible research assessment aligned with the DORA and CoARA principles. They are expected to have a plan in place for implementing the principles, and for monitoring and reporting on implementation.

A statement of institutional commitment to research assessment reform should include an undertaking to integrate open research criteria into systems of reward and recognition, in line with the emphasis placed on open research/open science in the Agreement and more recent discussions of responsible research assessment. It should also reference the statement of institutional commitment to open research, where this exists.

### Supporting commitments

Aside from commitment explicitly based on or subscribing to the main research assessment reform initiatives, institutions might consider making supporting commitments, e.g.:

- The More than Our Rank initiative provides an opportunity for academic institutions to highlight the problematic nature of league table rankings.

[2] DORA (2022), 'Engagement and outreach policy'. https://sfdora.org/sign/.

- The Barcelona Declaration on Open Research Information asks institutions to commit to making openness the default for research information, and to challenge the status quo in which large amounts of research information are locked in proprietary profit-making infrastructures.
- The Hidden REF 5% Manifesto encourages institutions to commit to submit at least 5% of their submissions to REF 2029 as non-traditional research outputs, to promote better representation for the range of research contribution roles and 'non-traditional' research outputs.

Whether or not institutions sign up to all these commitments, discussion of them can be useful ways to highlight areas of practice in need of reform and to consider ways in which they might be addressed.

### Building commitment

Publishing commitments to open research or research assessment reform will be a collective effort, with stakeholder groups led by senior colleagues. Any commitment will be ineffective if the effort is not made to build the coalition that will implement it and if ownership and accountability are not built in. The process of developing an institutional statement will offer an opportunity to engage stakeholders through consultation, and to secure support for their achievement through strategic actions. Care should be taken to ensure that relevant stakeholder groups are represented in the process of developing and consulting on institutional commitments (including, for example, early career researchers and professional services colleagues) and that statements, once adopted, are communicated to the research community. Institutional commitments will need to be signed off at a high level, and there will need to be appropriate ownership of, and accountability for, delivering against the commitments.

Strategic activities related to development of open research and research assessment reform may have separate origins within the institution and may be undertaken by separate groups under different leadership. Where this is the case, it will be important to ensure that their activities are co-ordinated on the common ground of reward and recognition for open research, and that there is agreement about objectives and the means of attainment. The process of developing and consulting on institutional statements should ensure this co-ordination and agreement take place.

Agreement on the relevance and place of open research within research assessment cannot be taken for granted. One advantage of signing up to the Agreement on Reforming Research Assessment is that by doing so the institution subscribes to the Core Commitment to 'Recognise the diversity of contributions to, and careers, in research in accordance with the needs and nature of the research'. The purpose of this Commitment is to broaden the range of research activities and outputs recognised, to include *inter alia* 'diverse outputs beyond journal publications' and 'practices that contribute to robustness, openness, transparency and the inclusiveness of research'.

### Demonstrating progress in implementing the commitments

The institution will need to demonstrate over time that aspirational commitments are being realised and incorporated into business as usual. Published commitments can identify senior leads and groups responsible for implementing them, and include action plans and updates on progress against milestones.

Where there are specific reporting expectations associated with external commitments, such as those associated with membership of CoARA, these can be communicated within the institution.

Activities and communications relating to institutional research strategy, environment and culture should be aligned to and reference institutional commitments. Policies and procedures will in due course integrate elements of the open research commitments that have been realised and may reference them, as may relevant guidance and training. Internal communication channels can be used to communicate the open research commitments to key stakeholders and the broader research community. Management structures can be used to ensure the commitments are applied and referenced as appropriate.

# 2. Leadership

> Does your institution provide leadership at a senior level for strategic action on open research and responsible research assessment, including recognition and reward for open research, and is open research leadership fostered at all levels in the institution?

## Why is this important?

- Recognition and reward for open research may be implemented at the intersection of strategic activities to develop open research culture and to undertake research assessment reform. Where these activities are separately led, leaders in both areas must accept and agree on the objectives to be achieved, in order for implementation to be effective.
- Recognition and reward for open research in research assessment is relatively undeveloped. There is a risk that its importance will not be appreciated or factored into activity. It will be essential to have an informed and empowered advocate who is able to ensure open research is within scope of activity and given due weight.
- Leadership can be demonstrated by those in positions of influence, as research leaders and managers and senior members of professional services; as professional services colleagues who might support good practice though the provision of services, guidance and training; and as informal or nominated advocates of open research.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| There is no senior strategic leadership for open research or responsible research assessment. | There are identified senior strategic leads for open research and responsible research assessment. Recognition and reward for open research in research assessment is an identified priority for strategic action. | Senior leadership develops actions on open research and responsible research assessment in collaboration with key stakeholders. Actions to recognise open research in research assessment are agreed and supported by relevant leads and promoted by open research advocates across the institution. | Recognition and reward for open research in research assessment is progressed as a strategic priority by members of senior management. External engagement ensures alignment to sector. Leadership in open research is seen and valued across the organisation, and includes researchers, research enablers and open research advocates. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Nominate and empower a member of senior management or professional services with responsibility for strategic action to develop open research culture and practice.
- Nominate and empower a senior strategic lead for responsible research assessment.
- Identify recognition and reward for open research as a priority for strategic action.

### Emerging to Evolving

- Evidence activity by senior strategic leads for open research and responsible research assessment and engagement with relevant stakeholders. Where leadership of open research and responsible research assessment is separate, ensure there is co-ordinated action and agreement on objectives to include recognition and reward for open research.
- Identify and develop advocates in the research community and professional services who can provide leadership and support for open research recognition and reward.

### Evolving to Sustained

- Demonstrate progress in embedding culture change under the direction of the senior strategic lead.
- Cascade open research leadership through the organisation, with research leaders and managers, research professionals and other champions showing leadership in their areas of activity and influence.
- Demonstrate that championing open research practice is a recognised criterion of research leadership, for example through inclusion in job descriptions, promotion criteria, and performance and development review.
- Demonstrate that leadership in the institution is engaging externally with research assessment reform networks in order to promote effective recognition and reward for open research across the sector.

## Main areas of activity

### Open research leadership

A member of senior management with responsibility for developing open research culture and practice within the institution can develop and lead strategic action and act as a senior champion for open research. This person will represent the institutional commitment to open research and act as a strong advocate for the open research interest. They must be sufficiently informed about open research and convinced of its importance to be a strong advocate. This will be essential where research assessment reform activity is separately led, and discussion may be required to ensure that recognition and reward for open research is within scope of activity and given appropriate weight.

An open research lead is likely to have greatest impact when this is a role with authority to instigate institution-wide change e.g., a PVC for Research, Dean, senior professional services manager, or someone at a similar level. The role may be most effective where there are defined responsibilities and accountability, for example to develop, implement and report on the progress of a plan of strategic action to increase open research culture and practice in the institution. For members of the UKRN, the role could fit well with that of Institutional Lead: members of the UKRN are required to appoint a senior academic to this role, with responsibility for research improvement and research integrity, reporting to the PVC for Research (or their equivalent). The Institutional Lead role is expected to make a minimum commitment of 1 day per week (0.2FTE). Stakeholders within institutions that lack an open research lead and are not currently members of UKRN may be able to use the case for membership as a vehicle for securing senior management leadership for open research.

Action to develop open research culture and practice in the institution would ideally be undertaken by a group convened for the purpose under the senior lead for open research and comprising representatives of key stakeholder groups, including the academic community and relevant professional services. But the existence and scope of such a group, and its actions, will vary across institutions according to research priorities and available resources.

### Leadership in recognition and reward for open research

Implementation of recognition and reward for open research will require leadership in promoting the need for change within the institution, engaging key stakeholders and the wider community to secure buy-in and manage resistance, and in managing a stakeholder group tasked with delivering established objectives.

Implementation may sit at the intersection of otherwise separate activities to address research assessment reform and to develop open research culture and practice. These activities may be undertaken by separate groups under the direction of different senior leads within the institution. Where this is the situation, the lead for open research will need to make the case for recognition of open research within institutional assessment and ensure that there is agreement with the lead for research assessment reform on the objectives to be achieved and the means by which they will be achieved. This agreement may have been established through the process of developing institutional commitments to open research and research assessment reform.

### External engagement

While the focus of senior leadership roles will be on activity within the institution, there will also be opportunities for external engagement. Leadership here may help to promote alignment in policies for recognition of open research within research assessment, at the level of national assessment (i.e. through the REF), by funders when assessing researchers and institutions for the award of grants, and between institutions, so that researchers are assessed by similar standards at all institutions. Representation in national fora such as the CoARA National Chapter (for CoARA members) and the OR4 community of practice afford opportunities to exchange knowledge and practice and to co-ordinate activities across the UK sector.

### Research leaders and managers

Research leaders and managers have a role to play in developing a research environment that incentivises researchers to use open research practices, as well as in the specific promotion of recognition and reward for open research. According to their roles and institutional requirements they may do any of the following:

- promote the use of open research practices in the areas under their authority, including compliance with relevant policy expectations, such as those relating to open access publication and data sharing;
- set an example by demonstrating good open research practice in their own work and professional relationships;
- use communication activities to highlight and celebrate the open research activities and outputs of colleagues;
- engage with and signpost to colleagues the professional services that provide support for open research, such as research publishing and research data management services;

- support researchers at all levels to develop their knowledge and skills through the training and support provided by the institution;
- use research planning and internal review processes to identify and, if required, report on attainment of open research objectives at group or individual level, as relevant;
- monitor activity and compliance, and take appropriate action in cases of non-compliance or poor practice, such as arranging for additional support or training;
- ensure that activities involving the assessment of researchers under their authority (e.g. recruitment and probation, promotion, performance and development review, etc.) implement appropriate recognition and reward for open research.

### Other leadership roles

Leadership will also be required at different levels and in different places in the institution to champion the open research agenda, and specific activity to include recognition and reward for open research in research assessment. Champions may be:

- members of professional services who will support implementation: both those who provide open research support and training and have a strong investment in promoting open research practice, and others such as HR professionals who may have specific roles to play in implementing and promoting new policies and procedures;
- advocates for good practice in research, who may be formally nominated in some capacity, or have some informal role. Examples include open research champions, UK Reproducibility Network Local Network Leads, etc.

# 3. Strategy and planning

> Do you have a strategic plan owned by a stakeholder group for developing open research culture and practice, and is recognition and reward for open research addressed in this plan and any related policies/plans concerning the assessment of researchers?

## Why is this important?

- Recognition and reward for open research practice must be situated within wider strategic activity to develop open research culture and practice in the institution. Researchers may lack awareness of open research or the motivations, skills and resources to effectively adopt open research practices.
- Implementing recognition and reward for open research should be a key element of research assessment reform.
- Implementing expectations related to open research in research assessment will not be effective if the institution does not also develop policy and infrastructure, and provide information, training and support to create an environment in which open research practice is enabled and incentivised.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| There is no open research strategy or plans to implement change. | A strategic plan for open research has identified recognition and reward for open research in research assessment as an area for action. This objective is recognised in strategic action on research assessment reform. | Strategic action on open research has progressed. Recognition and reward for open research across all key areas of research assessment is actioned by a stakeholder group against a strategic plan. Progress has been made against objectives. | Strategic action on open research is well-developed and sustained. Recognition and reward for open research has been implemented in relevant policies and procedures. The implementation plan has been delivered and action is focused on monitoring, consolidating and embedding practice. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Create and secure approval for a strategic action plan to develop open research culture and practice which identifies recognition and reward for open research as an area for action.
- Where research assessment reform work is undertaken by an existing group, ensure that there is representation for open research in this group.
- Establish recognition and reward for open research as an objective, and discuss the infrastructure, training, and support that may be required.

### Emerging to Evolving

- Demonstrate progress against an open research action plan.
- Ensure there is a detailed plan for implementing research assessment reform, including recognition and reward for open research, which is agreed and owned by the relevant stakeholder group.
- Demonstrate progress against the research assessment reform implementation plan, with members of the stakeholder group working to deliver primary objectives.

### Evolving to Sustained

- Demonstrate that substantive progress has been made against the action plan to develop open research culture and practice.
- Demonstrate that primary objectives of the research assessment reform plan have been delivered, with recognition and reward for open research integrated into relevant research assessment policies and procedures.
- Move from implementation to consolidation and embedding of operational activity, with monitoring and reporting to the relevant oversight committee/group.

## Main areas of activity

> 'Open Research Action Plans (ORAP) were created and adopted for the periods 2021-23 and 2024-2029, and an Implementation Group was formed to undertake delivery. […] The first ORAP identified implementation of recognition and reward for open research as an objective. To address both this requirement and the need for broader research assessment reform, [the University] established a Research Assessment Working Group (2021). The Working Group […] has built stakeholder engagement, drafted a Research Assessment Policy, and laid the foundations for policy adoption and implementation over the period to 2028. One of the key principles of the proposed policy is that "Assessment should recognise openness and reproducibility in research".' University of Reading

### Open research action plan

A strategic action plan to develop open research culture and practice may be created and implemented. The plan is likely to identify objectives, deliverables, timelines, responsibilities and measures of attainment, and will require a commitment of staff time and other resources required for effective implementation. The plan will need to be managed on an ongoing basis, and able to demonstrate and report progress against specified milestones to a relevant committee.[1] It should include as one of its objectives to promote and support the implementation of recognition and reward for open research.

Implementation of recognition and reward for open research may not be directly owned by an open research stakeholder group, as it may sit within wider activity related to research(er) assessment. An open research lead should ensure that relevant open research objectives are within the scope of research assessment reform activity and are appropriately defined and represented in this group.

Recognition and reward for open research will be one primary objective of the open research strategic plan, which will be enabled by more general progress in developing the culture and practice of open research in the institution. As open research is progressively established in the mainstream of institutional

[1] UKRN provides a 'Checklist for an Open Research Action Plan': https://www.ukrn.org/primers/. Examples of plans developed by different institutions include: Keele, https://tinyurl.com/2wehf9xr; Reading, https://tinyurl.com/murfjnf2; Surrey, https://tinyurl.com/5n7mtbe2.

research activities, and as open research practice increases, it will become more usual for researchers to evidence the use of open research practices when presenting their work, and for this to be expected and recognised by those involved in the assessment of researchers.

### Implementing recognition and reward for open research in research assessment reform

Within plans for research assessment reform, recognition and reward for open research should be included. This is likely to affect many areas of assessment activity, including the development of policy and procedures, and any guidance, training and support. Open research expertise will be necessary to ensure open research is fully integrated into the implementation plan and that these elements are delivered as work progresses. For this reason, where open research and research assessment reform are separately led strategic activities within an institution, effective representation for the open research interest will be essential.

Recognition and reward for open research can be addressed as part of planning to meet the first Core Commitment of the Agreement on Reforming Research Assessment, to 'Recognise the diversity of contributions to, and careers, in research in accordance with the needs and nature of the research'. The purpose of this Commitment is to broaden the range of research activities and outputs recognised, to include *inter alia* 'diverse outputs beyond journal publications' and 'practices that contribute to robustness, openness, transparency and the inclusiveness of research'. This Commitment can be linked to the 'Diversity, inclusiveness and collaboration' Principle, which discusses a wide range of research outputs and explicitly mentions open science practices.

# 4. Communication and engagement

> Are you undertaking strategic communication activity to engage key stakeholders required to implement recognition and reward for open research, to inform members of the research community of changes to policies and procedures, and to ensure researchers' perspectives and experiences are voiced and heard?

## Why is this important?

- A programme of communication and engagement will be integral to any strategic action to develop open research culture and practice in the institution.
- Stakeholders are critical to the approval, promotion and implementation of recognition of open research in research assessment and therefore must be engaged and have the opportunity to contribute where appropriate.
- Employees and recruitment candidates may be unfamiliar with the idea that open research practice can and should be recognised in research assessment, and may not necessarily agree. It will take sustained effort to develop awareness, understanding and active engagement with policy and practice related to recognition and reward for open research.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| There is no communication about the recognition of open research in research assessment. | Some information about recognition and reward for open research in research assessment has been communicated, but with little or no guidance, or active engagement. | Strategic communications about recognition and reward for open research are part of an open research communication plan. Key stakeholders have been identified and engaged. Stakeholders have been able to learn about and contribute to changes in policy and procedure. | Well-publicised information about recognition and reward for open research in research assessment policies and procedures is supplemented by strategic, consistent communications targeting key stakeholders and the wider community to raise awareness and promote good practice. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Disseminate a range of communications that indicate recognition and reward for open research as an upcoming strategic ambition or aim.
- Facilitate conversations with key stakeholders about the need for greater consideration of open research in recognition and reward practices.

### Emerging to Evolving

- Develop an open research communication and engagement plan, which includes communications around recognition and reward for open research, associated with published institutional commitments and strategic plans.
- Ensure regular communications relating to recognition and reward for open research are included as a key theme in research assessment reform communication plan, where this is separately managed.
- Undertake consultation on proposals for inclusion of open research recognition and reward in research assessment reform, engaging key stakeholders to develop buy-in and obtain input.

- Ensure there are established mechanisms and channels for feedback and that there is effective representation of researchers' interests on strategic oversight groups.

### Evolving to Sustained

- Ensure information about recognition and reward for open research is integrated into relevant procedures, e.g. recruitment, probation, and promotion, and references relevant guidance and training, and that those supporting implementation understand and apply the policy.
- Include communications relating to recognition and reward for open research as part of open research communications, using research leaders and managers and open research advocates to amplify and target messages.

## Main areas of activity

### Open research communication and engagement plan

It is imperative that any actions, policies or support specifically relating to reward and recognition of open practices are widely communicated to all relevant stakeholders. Many institutions have already developed communication and engagement activities to support strategic activity related to open research. Examples of such activities include:

- the publication of an open research statement;
- the provision of information, guidance and case studies of open research practice;
- the organisation of conference and workshop events themed around open research topics;
- open research award competitions;
- the appointment of open research champions;
- communications related to significant open research developments, such as the adoption of a rights retention policy for publications by the institution.

These activities may not always sit within a single strategic communications plan; they may be undertaken by different stakeholders within the organisation and may not be explicitly organised around an open research theme. However, to progress through to maturity, institutions would be expected to have a structured plan for communication related to reward and recognition for open research.

By developing an open research communication and engagement plan, the open research stakeholder group can facilitate a strategic and co-ordinated approach to communications, in order to target these effectively and communicate key messages. A stakeholder analysis can help with this. It will largely overlap with the stakeholder analysis for research assessment reform, although there may be those with specific interests and expertise in open research who will need to be engaged, including:

- members of any stakeholder group overseeing strategic action related to open research;

- members of professional services who support open research, such as colleagues supporting open access and research data management and research software engineers, as well as those who may support procedures that will be affected, such as colleagues in HR;
- open research advocates, such as UKRN Local Network Leads or those in other institutionally appointed champion roles, and individuals who have a profile as open research advocates.

### Open research recognition and reward communications

Communications related to implementation of recognition and reward for open research are likely to be developed and managed as part of the communications plan for research assessment reform.

Key phases of communication might be:

- signalling intent and engaging key stakeholders: this phase might accompany the making of any institutional commitments, such as signing the Agreement on Reforming Research Assessment;
- consultation or co-development with key stakeholders, for example, in relation to a draft research assessment policy, or proposed changes to academic promotion criteria;
- publication and promotion of policy, guidance and training;
- ongoing communications to consolidate and embed changes, increase awareness, and ensure those affected are informed about expectations, requirements and support, using research leaders and managers, relevant research support functions, such as HR and open research support teams, and open research champions to target and amplify key messages;
- ensuring there is representation of researchers' interests on strategic oversight groups, so that there is a formal channel for feedback about policy and procedures, and providing inclusive mechanisms for review and amendment of policy.

Communications and engagement planning will need to take account of likely resistances and concerns. Not everyone will agree that open research should be recognised and rewarded in research assessment activities. There may be disagreement about how criteria should be articulated in policy, and how they should be applied, given that relevance of open research practices will be a function of both a researcher's discipline and the type of research they have engaged in. There are likely to be concerns about the risks of disadvantaging those who by reason of discipline, type of research, career stage, protected characteristics and professional and cultural background may not have had the same opportunties as others to learn and apply open practices in their research.

This highlights the importance of developing policy through an inclusive process that embraces representatives of relevant stakeholder groups, engaging researchers at all levels and across a relevant range of diversity, as well as formal representatives, such as unions and institutional EDI leads, and ensuring that policy objectives and proposals are communicated within a genuinely collaborative dialogue. A co-develpment model, such as the SCOPE Framework for Research Evaluation can provide a robust framework for such an inclusive policy development process.

# 5. Policy and procedure

> Is recognition and reward for open research adopted as institutional policy, and included in all relevant policies and procedures, e.g. those related to recruitment, probation, promotion, performance and development review, and other activities involving the appraisal of researchers?

## Why is this important?

- Recognition and reward for open research must be incorporated into policy, with defined expectations and responsibilities, in order to be effectively implemented and to be able to support long-term cultural change. A number of policies and procedures will be affected – those related to recruitment, probation, promotion, performance and development review, and possibly others. If policies are not aligned and co-ordinated, this may result in inconsistent practices and mixed messages, which will undermine the policy objectives.
- It will be essential to secure the buy-in of related policy owners and the support of those responsible for their implementation. Changes to systems and processes and responsibilities of support staff may be required and would need to be discussed and agreed.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| Recognition and reward for open research is not referenced in policies or procedures related to or involving the use of research assessment. | Recognition and reward for open research is mentioned in some relevant policies and procedures, but on a limited basis and with little evidence of integration or effective use. | Recognition and reward for open research is included in most relevant policies, with evidence of effective integration into practice. | Recognition and reward for open research is included in all relevant policies and procedures. There is evidence of increasing effective use of open research criteria by candidates and assessors in research assessment activities. Policies are reviewed regularly. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Include some mention of open research and open research criteria in some key policies, e.g. for promotion, although the broader policy framework and supporting procedures, training, etc. may not yet be developed.

### Emerging to Evolving

- Develop and publish a research assessment policy or statement aligned to the Principles of the Agreement on Reforming Research Assessment, which includes a commitment to recognise and reward open research, with definition of open research and reference to an open research statement or policy.
- Identify relevant policies and procedures involving the assessment of researchers e.g., those concerning recruitment, probation, promotion, performance and development review, and engage policy owners to discuss and agree required policy, including support and resource requirements.

### Evolving to Sustained

- Ensure that all relevant policies and procedures have been updated to integrate recognition and reward for open research consistent with institutional policy and open research policies.
- Ensure that policies and procedures are operating effectively and have been refined as necessary in response to feedback. Various routes should be available to provide feedback for substantive and iterative development of policy and procedure.
- Review policies and procedures on a regular basis to align with developments in open research practice.

## Main areas of activity

### Research assessment policy implementation

Recognition and reward for open research will be relevant to and require incorporation in a range of institutional policies and procedures, including those concerning recruitment, academic probation, promotion and professorial review, performance and development review, and any other processes involving research appraisal and reward allocation. It will be important to ensure that institutional systems of reward and recognition are aligned and consistent between themselves.

We believe the most effective way to achieve this alignment and ensure consistency across relevant policies is to adopt an institutional research assessment policy to which other policies can be linked. Such a policy would set out the general principles of research assessment, which would include expectations and responsibilities related to open research. Relevant provisions could then be adopted into policies and procedures that involve the assessment of research or researchers.

This is not necessarily the only option for implementing relevant policy provisions. They might also be progressively integrated into existing policies, for example, beginning with the academic promotion policy, then moving on to recruitment and probation, performance and development review, etc. This may be a more practicable option in some institutions.

### Formulating expectations related to open research

The emphasis on open research as a dimension of research that should be considered in research assessment is relatively recent. (This is discussed in the Introduction.) Where institutions have adopted policies relating to research assessment, so far these have mostly been focused on publications and the responsible use of publication metrics.[1] There is consequently both a need to update existing research assessment policies and a lack of established models for policies that reflect a broader concept of responsible research assessment, especially any that include explicit recognition of open research.

[1] In the survey of UK institutional policies and practices undertaken by the OR4 project in 2023, 44 or 73% of 60 respondents stated that their institutions had a statement or policy on responsible research assessment or the responsible use of metrics. The majority of these were focused on the use of publication metrics. In scope and terminology many of these statements follow and reference DORA and the Leiden Manifesto.

There is also the challenge of articulating open research expectations and requirements fairly, and in a meaningful and realistic way, within any research assessment policy, given that current awareness and practice on the part of researchers are at a relatively low level. Any policy must take account of various factors, in particular:

- researchers will come from different institutional and cultural backgrounds, which will have influenced the degree to which they are aware of and have had opportunity to use open research practices;
- the relevance of open research practices and benchmarks will vary by discipline and type of research. Some disciplines may have more advanced cultures of data sharing or using preregistration than others; relevant of open research practices and policy expectations will depend on the type of research: data sharing expectations cannot apply where research has not involved collecting data. Policy expectations must be formulated so that they can be applied in ways that are meaningful for specific disciplines and, within disciplines, for specific types of research;
- the existence and scale of any track record in open research will depend on the career stage of the researcher and their employment history, which may include career breaks, or employment in industry or other areas that have not provided opportunities to use open research practices.

Institutions will approach the development of policy, and the inclusion of open research within it, in different ways, but it will be important to ensure the process of policy development is inclusive and the end result embodies the values of the institution. The SCOPE Framework for Research Evaluation developed by the Institutional Network of Research Management Societies (INORMS) is an excellent practical model that can be used to support the an inclusive process of policy co-development and implementation. It includes a number of case studies that demonstrate how different institutions have used the Framework to develop research assessment policies.

> 'There was a need to make allowances for adjustments in Schools to support individual and discipline-specific requirements and approaches. This was particularly true for open research practices, which are currently adopted to different degrees across disciplines. Similarly, career stage was a consideration, as earlier-career researchers tend to be more familiar with open research practices than senior researchers.' University of Bristol

### Recognising non-academic contributors to research

While the focus here is primarily on academic researchers, we believe that contribution to open research should be recognised and rewarded wherever and by whomever it is made. (This is discussed in the Introduction.) Institutional policies should recognise the collaborative nature of much research, and should enable non-academic contributors to research, such as data scientists, technicians and reesarch softare engineers, to be recognised and rewarded appropriately.

Where policy is developed, effort should be made to ensure non-academic contributors and research enablers have the opportunity to provide input. The insitution may participate in initiatives that support better recognition and career development for research enablers, such as the Technician Commitment, or members of staff may be engaged in professional communities that advocate for increased recognition,

such as the Society of of Research Software Engineering. Representatives for such commitments and initiatives may be key stakeholders to engage in the policy development process.

### Integrating open research criteria in relevant policies and procedures

Policies and procedures that would need to take account of open research criteria include those relating to recruitment, probation, promotion, and professorial review, performance and development review, and other forms of reward and recognition, e.g. awards of institutional funding and other prizes.

The process of updating policies and procedures is likely to require a substantive collaborative development and consultation phase and could be driven by a research assessment reform group, an existing group with authority in these areas, or an empowered institutional lead. There may be discussion with policy owners over the precise nature of the changes, how and by whom any support requirements will be met, and the provision of additional resources to support implementation. It will be important to reach agreement on these matters if the policy is to be implemented effectively. It will also be necessary to ensure there is appropriate reference to open research expectations/requirements in any update of related policy and procedure documents, and guidance and support are signposted. For example, an academic promotion framework may need to update its criteria to include specification of open research, with information for both promotion panels and candidates providing links to any relevant policy information, guidance and training.

### Academic assessment frameworks and open science approaches

Academic promotion and professorial review policies customarily define assessment frameworks in which a number of assessment criteria are identified, usually under broad categories such as Academic citizenship and leadership, Research, and Teaching and learning.

There have been some efforts to create models of academic assessment frameworks in which open science is a defining dimension of academic activity and assessment. These have been European initiatives, where 'open science' may encompass not just open research activities and outputs, but other knowledge-related activities such as innovation, the creation of impact, public engagement, and teaching and supervision. These models of academic assessment frameworks may be of use to institutions that are planning or undertaking a review of academic development and assessment pathways and frameworks.

In such frameworks, recognition can be given not just for practising open research directly, but for contributing to a culture in which open research is enabled and practised, for example by delivering training in open research practices,[2] by using open research products in teaching, or by developing or curating infrastructure that supports open research, e.g. community data standards. These frameworks are consistent with the ambition of the Coalition for Advancing Research Assessment to expand the range of activities and outputs recognised in research assessment.

[2]The Open Research Programme is supporting partners to develop their capacity to deliver open research training: https://www.ukrn.org/ws1-training/.

In 2017 the EU report 'Evaluation of research careers fully acknowledging Open Science practices'[3] proposed an Open Science Career Assessment Matrix (OS-CAM) in which open science is a guiding principle, and the full spectrum of open science practices, including open access to publications, open data, open peer review, research integrity, citizen science and stakeholder engagement, is taken into account. In the proposed framework all aspects of a researcher's career, output and activities are included in the assessment, and all outputs and activities are assessed on the basis of their degree of openness.

The OPUS project, which began in 2022, has built on the foundation laid by OS-CAM to produce a comprehensive researcher assessment framework which includes an open science dimension designed to support recognition and reward for open science practices. The framework structures indicators in four categories of activities, for Research, Education, Leadership and Valorisation, thus providing an 'open' lens with which to view the full range of an academic's activities. The framework is being tested and refined in collaboration with pilot institutions. It uses a modular design so that the framework can be customised to meet the requirements of the individual institution.

### Case study

Including open research in the University of Bristol's Academic Promotions Framework

[3]Working Group on Rewards under Open Science (2017), 'Evaluation of research careers fully acknowledging Open Science practices'. https://data.europa.eu/doi/10.2777/75255.

# 6. Support, systems and processes

> Has support for open research recognition and reward been effectively operationalised in responsibilities of support staff, and administrative systems and processes?

## Why is this important?

- Implementation of procedures supporting recognition and reward for open research may involve changes to responsibilities of academic and professional services staff, and administrative systems and processes, and may entail reviewing resource requirements. Professional services support must be efficiently aligned to strategic objectives and any requirements for additional investment will need to be clearly justified.
- Staff responsible for supporting recognition and reward for open research may require training and oversight. Existing systems and processes may need to be revised, or new systems and processes implemented and integrated.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| There is no operational implementation of recognition and reward for open research in research assessment. | Colleagues enabling open research provide some support for open research recognition and reward, without dedicated responsibilities, systems or processes. | In some research assessment activities, colleagues have defined responsibilities to support recognition and reward for open research, and there has been some development of supporting resources, systems and processes. | Colleagues have defined responsibilities to support recognition and reward for open research in relevant research assessment activities. Resources are allocated and supporting resources, systems and processes are well-developed and operating effectively. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Provide some informal ad hoc support for open research recognition and reward within existing professional services support roles and systems and processes.

### Emerging to Evolving

- Ensure that existing open research support roles provide some support for recognition and reward for open research in some defined researcher assessment processes.
- Identify and develop areas of professional services support and changes to systems and processes necessary to implement recognition and reward for open research.

### Evolving to Sustained

- Demonstrate that professional services support for open research has developed, is well-integrated into institutional processes, and is delivering support in alignment with strategic objectives to grow open research culture and practice.
- Ensure that relevant professional services staff have defined and understood responsibilities to support recognition and reward for open research as part of support for responsible research assessment and are delivering effective services.
- Ensure that supporting systems and processes have been developed/implemented as required, are operating effectively, and are delivering timely support in response to demand.

## Main areas of activity

### Support

There is likely to be growing need for both open research and responsible research assessment support as these become more integrated into business as usual and demand increases.

Institutions will have some level of existing professional services support for open research. This may be focused on open access research publishing and research data management and sharing. Support may need to define a broader open research remit in accordance with strategic objectives to develop open research culture and practice, and additional staffing/resources may be required or desirable to meet

a growing need for training and expert support across a variety of open research practices in addition to publishing and data sharing, e.g. research software engineering and pre-registration, and to provide discipline-specific expertise in open research methods. The senior strategic lead for open research and any relevant stakeholder group should work with professional services to develop strategic plans including business cases for investment where needed, expansion of roles to capture additional open research requirements, creation of partnership models and collaborative relationships, and more effective application of institutional expertise. What is achievable will depend on the avaialbility of resources in the institution.

There is likely also to be some existing support for the generation and validation of research metrics, as part of institutional research planning, management and assessment activities, and in response to the needs of individual researchers. Demand for these services can be expected to grow, with greater demand to handle enquiries, provide research metrics reports and researcher profiles, assess/validate metrics on request, and in other ways support those involved in research assessment activities, for example as part of recruitment or promotion panels. Monitoring and reporting on compliance with policy may require additional support. There will also be a need for institutions to work with their academic community to develop responsible assessment processes and provide guidance and training in responsible research assessment.

There is work ongoing in the sector to develop indicators and metrics related to open research practices,[1] and this may be an area where there will be a need for new responsibilities related to their collection and management. Other new demands may also be established, including training for panels or guidance on job descriptions and narrative CVs.

Colleagues providing support for processes such as recruitment, probation, promotion and performance and development review may need to integrate some support for responsible research assessment, and recognition of open research within that. Additional requirements may be absorbed into existing responsibilities, processes and systems to a large extent. For example, HR staff may need to check job advertisements and job descriptions against requirements; or if there is a requirement for members of recruitment and promotion panels to take training on responsible research assessment, training logs may need to be created and checked. HR colleagues will also need to be sufficiently informed to handle enquiries that may require signposting of relevant policy or information, or making a referral to expert support, for example as provided by open research support colleagues.

### Systems and processes

Systems and processes may need to be modified or developed in support of changes to research assessment policies and procedures. For example:

- Forms may need to be updated, e.g. to include instructions and guidance on citation of open research activities and outputs other than publications where relevant;
- Templates may need to be updated to include standard texts related to responsible research assessment and open research expectations for use in job advertisements;

[1] GraspOS. https://graspos.eu/; OPUS. https://opusproject.eu/; UKRN (2023), 'UKRN 2nd working paper: Open Research Indicators: sector priorities'. https://www.ukrn.org/2023/06/30/ukrn-2nd-working-paper-open-research-indicators-sector-priorities/.

- Research assessment workflows and checklists may need to be developed, to help staff undertake research assessment appropriately. This could include open research-related checks;
- New systems, or developments to existing systems, and related processes may to be required to collect and process open research information. This is dealt with in more detail below.

### Collecting and managing open research information

Developments in research infrastructure are making it easier to identify and collect outputs and data related to individuals and organisations. Information about open research activities and outputs can be used to support institutional planning and development, to manage and report against compliance requirements, and to inform researcher assessments. Institutions may need to adapt existing systems or invest in new solutions and integrate them with their existing research information infrastructure.

Key developments in research infrastructure directly relevant to capturing and processing information about open research activities and outputs include increasing use of:

- trustworthy repositories to publish and preserve different kinds of outputs;
- persistent identifiers (PIDS) such as DOIs and ORCiDs to enable accurate citation, discovery and linking of entities (e.g. linking of researchers and institutions to research outputs, and linking between research outputs, such as publications and datasets);
- the CRediT Contributor Roles Taxonomy in output metadata, facilitating more accurate description of individual contributions to research activities and outputs.

Publishers and other providers of research infrastructure services are developing research information and analytics products to enable the aggregation, management and analysis of data about open research outputs (including data, code, protocols, pre-registrations, preprints) and attributes (e.g. CRediT roles) from across a distributed research infrastructure of publisher platforms, repositories, preprint servers, registries, broker services and research information systems. Examples of products that support open research analytics include Dimensions from Digital Science, Elsevier's Data Monitor, and OpenAIRE Monitor. The PLOS Open Science Indicators initiative, developed in collaboration with the AI company Dataseer, is working to develop and pilot institution-level reporting functionality.[2]

One important aspect for institutions to consider is the openness of research information. It is a principle of responsible research assessment that those being evaluated should be able to verify the data and analysis used to evaluate them. Yet much of the information by which research practices might be monitored and evaluated is held in closed systems. Proprietary commercial products such as Web of Science and Scopus, which underpin much of the publication-based analytics used in researcher assessment activities, lack transparency. This is something that has been of concern to the research assessment reform movement, with DORA, the Leiden Manifesto and CoARA all taking positions in support of open research information. The Barcelona Declaration on Open Research Information, published in 2024, sums up the concerns of the sector and enumerates a set of commitments that signatories can sign up to.

[2] PLOS (2023), 'The new Open Science Indicators dataset is here!' https://theplosblog.plos.org/2023/10/open-science-indicators-q2-2023/.

Some institutions are developing their own workflows and services to collect and manage open research information. For example, the University of Manchester Library has developed an Open Research Tracker, which leverages integrations with its CRIS, CrossRef, and the Scholarcy AI platform to collate and integrate information about publications and data. Its development roadmap anticipates further integrations, including with its data repository, ORCiD, the Open Science Framework, and protocols.io, and the capability to collect data relating to a wider range of output types, including pre-registrations, methodologies, and research software. The University is planning to release its software under an Open Source licence, so that other institutions can make use of it.

# 7. Guidance and training

> Do you provide guidance and training on recognition and reward for open research for the benefit of colleagues involved in activities that require the assessment of researchers, such as recruitment, probation, promotion and performance and development review, and for researchers subject to assessment, some of whom will be external?

## Why is this important?

- For change to be effective and sustained, those affected will need guidance and training to help them understand policy requirements, their responsibilities, and how to meet them. This will apply both to those involved in the assessment of researchers and those being assessed.
- Criteria and methods of assessment must be transparent and accessible to those subject to assessment.
- Guidance and training can contribute to cultural change by developing understanding, knowledge and motivation to adopt the desired practices.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| There is no guidance or training on recognition and reward for open research in research assessment. | Some guidance on recognition and reward for open research is provided for those involved in research assessment. | Guidance and training on recognition and reward for open research is well-developed and made available to researchers, assessors and external candidates, as relevant. Resources are integrated into some processes and are promoted to staff. Training is encouraged for key staff members. | Guidance and training on recognition and reward for open research is available for all relevant groups. It is systematically targeted at staff involved in research assessment, and integrated into auditable training and development frameworks and processes. There is widespread use of training. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Publish information and/or provide ad-hoc training on recognition of open research in research assessment.

### Emerging to Evolving

- Provide publicly accessible guidance on recognition of open research as part of guidance supporting research assessment.
- Provide research assessment training including consideration of recognition and reward for open research that is available to all members of staff.
- Encourage completion of research assessment training for key categories of staff, e.g. researchers' line managers, members of recruitment and promotion panels.

### Evolving to Sustained

- Link to guidance and training on research assessment including consideration of recognition and reward for open research from all relevant policies and procedures.
- Integrate research assessment training into professional development frameworks, e.g. for early career researchers.
- Make research assessment training required for some colleagues, e.g. members of recruitment and promotion committees, with completion logged and monitored using institutional systems.

## Main areas of activity

### Guidance

Guidance on recognition and reward for open research will need to be provided in the context of guidance to support responsible research assessment in accordance with institutional policy. Employees involved in assessment activities will need to be sufficiently informed to be able to undertake assessment following the required processes and using appropriate assessment criteria and methods. Guidance will need to be linked to policy and integrated into systems and processes, so that it is signposted at relevant stages. It will need to explain the principles of research assessment, and the criteria and methods by which assessment is to be undertaken.

Transparency about assessment criteria and methods is essential. Candidates for assessment, whether applicants for jobs from outside the institution, colleagues undergoing probation or annual performance review, or those applying for promotion, will need to be sufficiently informed about assessment criteria and methods to be able to present their track records appropriately and effectively. Guidance will need to be publicly accessible online, so that it can be referred to by job applicants.

This guidance will need to include appropriate discussion of the recognition of open research in assessment, and to link to any open research statement, supporting information, and sources of support. Given that awareness and understanding of open research and appropriate practices for presenting, identifying and assessing evidence of open research practice are likely to be relatively undeveloped, guidance will need to be supportive in these respects, and to provide relevant illustrations. This might cover, for example:

- defining open research, in terms of types of practices and outputs that could be cited as evidence, and characteristics of good practice, e.g. sharing of outputs using open and standard licences, use of sustainable infrastructure such as repositories and persistent identifiers, conformity to FAIR Principles;
- publishing and/or linking to case studies of open research practice across different fields, so that researchers can identify practices relevant to their discipline and type of research. The UK Reproducibility Network provides an extensive compendium of open research across disciplines. A

number of institutions have also published open research case studies, in some cases genereated through open research award initiatives.[1]

- specifying the criteria by which evidence of open research will be assessed, and its role within the overall assessment, in alignment with the institution's research assessment policy;
- providing guidance on how to cite a variety of open research outputs across a range of disciplines and types of research, with examples of good citation practice;
- illustrating how a narrative presentation of track record might demonstrate the value of open research activities and outputs, through evidence of use, reach and impact, provided in accordance with responsible research assessment principles;
- signposting further information and support.

## Training

Training in responsible research assessment including consideration of recognition and reward for open research should be provided for staff undertaking assessment and for those preparing to go through a formal assessment process. This should cover the same ground as the guidance, and should be integrated into procedures, for example, so that recruitment and promotion committee members and candidates for promotion are directed to the training at appropriate points.

Training should be available for all staff involved in assessment activities and could be made mandatory in some cases: for example, it could be required for all line managers of researchers, for all members of academic recruitment and promotion committees, and for all candidates for academic promotion. Training may be delivered as an e-learning course to provide a basic level of understanding at scale, and as online or face-to-face sessions to develop more in-depth knowledge and skill. Records of completion of training maintained in institutional training systems can be used to monitor compliance. Where staff are involved in assessment activity and fail to complete required training this can be followed up with appropriate action. Training logs can also provide an indicator of the degree to which policy and understanding of responsible research assessment have been disseminated across the institution, and so provide one of the measures for ongoing monitoring.

Training in responsible research assessment and presentation of open research track record could also be incorporated into institutional professional development frameworks, for example for early career researchers.

[1] See e.g. Keele: https://www.keele.ac.uk/research/raise/governanceintegrityandethics/researchintegrity/openresearch/openresearchcasestudies/; Leeds: https://leedsunilibrary.wordpress.com/2022/12/09/open-research-case-studies-by-faculty/; Manchester: https://www.openresearch.manchester.ac.uk/resources/case-studies/; Newcastle: https://www.ncl.ac.uk/library/academics-and-researchers/research/open-research/case-studies/; Reading: https://www.reading.ac.uk/research/research-environment/open-research/open-research-case-studies; Sheffield: https://www.sheffield.ac.uk/openresearch/casestudies; Surrey: https://www.surrey.ac.uk/library/open-research/case-studies; UCL: https://www.ucl.ac.uk/library/open-science-research-support/open-science/about-office-open-science-scholarship/open-science-case.

# 8. Monitoring and evaluation

> Have you established priorities in implementing responsible research assessment, including recognition and reward for open research, and have processes to monitor and report on compliance with implemented processes been established?

## Why is this important?

- Measures of progress in meeting the implementation objectives related to recognition and reward for open research will need to be established and reported on.
- Formal reporting of established measures to an institutional sponsor group can demonstrate progress and empower the group to make informed interventions, e.g. to refine or further develop policies and procedures, and to enforce policy compliance.
- Monitoring can measure compliance with policy expectations and support interventions aimed at improving practice, for example by referring staff for training.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| There is no monitoring or evaluation of recognition and reward for open research in research assessment. | There has been some observation of practice with respect to recognition and reward for open research in research assessment. | Measures are defined and reported to monitor use of open research criteria in research assessment, with some operational support. Data capture developments in some practices and/or identify areas for targeting. | There is systematic collection and reporting of data on use of open research criteria in research assessment, with allocated operational support. Progress is monitored and evaluated across the institution, identifying and targeting areas for improvement. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Undertake some baseline observation and analysis of current practice in relation to recognition of open research in research assessment.

### Emerging to Evolving

- Establish measures and processes for reporting on use of open research criteria in research assessment during and after implementation of changes, and ensure processes and support are in place.
- Demonstrate increases in use of open research evidence within research assessments and researcher engagement in some areas of the institution.
- Establish processes for intervention where areas for improvement are identified.

### Evolving to Sustained

- Establish business-as-usual monitoring measures, processes and responsibilities, with institutional oversight and reporting, to assess impact and effectiveness of policy and compliance across the institution.
- Demonstrate sustained increases in use of open research evidence within research assessments and researcher engagement across several areas in the institution.
- Demonstrate effective responsive action where areas for improvement have been identified, e.g. through targeted communications, performance and development review, and training.

## Main areas of activity

### Measuring progress

Monitoring and reporting on activities can formalise expectations and support effective implementation of research assessment reform, including recognition and reward for open research. This will require establishment of the baseline from which change starts, and monitoring over time to measure progress towards identified goals. Repeated assessments using the **Recognising and rewarding open research** maturity framework may enable an institution to gain an overview of progress over time. Institutions are

also likely to have their own priority areas and initiatives to evaluate which may consider more specific outcomes. Implementation progress can be reported to the institutional sponsor group. This may also be the group to which ongoing progress post-implementation will be reported.

Given the number and variety of researcher assessment activities that an institution undertakes, a representative sampling approach may be necessary. For example, relevant activities in a small number of Schools or Departments might be observed during a defined time period. The same activities in the same areas could then be observed during similar time periods at later dates. These may be the areas in which changes to procedures are piloted before being rolled out more widely. The selection should ensure that a suitable variety of disciplinary cultures is represented, for example by including sciences, social sciences and arts and humanities disciplines. On a longer-term basis a random sampling approach across all areas of institutional activity might be used.

It will be necessary to define the information of relevance and the methods of data collection by which current practice can be characterised and progress measured. There is a wide range of open research indicators which could be considered. In respect of recognition and reward for open research, examples of methods by which data might be obtained include:

- analysis of a sample of job advertisements for open research criteria/keywords;
- analysis of a sample of applications for e.g. the presence of open research keywords, citation of outputs other than peer-reviewed publications;
- documentation of review processes, for example by the chair of a panel. This might be a checklist-based exercise to capture evidence about use of metrics and open research criteria in assessment;
- collection of feedback from candidates and committees/panels, which could ask about the role of open research considerations in assessment;
- collection of data on completion of training in responsible research assessment which addresses recognition and reward for open research.

This information can provide indicative data about compliance with policy across the institution and support evaluation of the impact and effectiveness of policy.

### Interventions

Given that the changes being introduced are not just procedural but cultural, it can be expected that they will take a considerable time to become embedded in business as usual. For a researcher to be able to evidence open research practices, they must have used those practices, and given the current low levels of adoption, many researchers may have little evidence to offer. But the progressive evolution of open research culture and practice will in due course increase the volume of evidence available, and the knowledge that open research is recognised and rewarded by an institution will be one important factor among others driving that increase in volume.

It will be important to be able to identify non-compliance and sub-optimal practice, so that remedial action can be put in place, for example by means of changes to procedures, targeted communications, conversations as part of performance and development review, and support or training.

# 9. Research planning

> Are institutional research planning policies and procedures effectively aligned with open research criteria in research assessment?

## Why is this important?

- Institutional and individual-level research planning should be consistent with criteria and requirements for the assessment of researchers, including those related to open research, in order to ensure that research activity is optimised to deliver against assessment criteria and that drivers of research activity are not misaligned.
- Institutional-level research planning is strongly influenced by systemic factors such as the REF that reinforce a tendency to exclusive focus on the research publication. It will take political will to ensure that meaningful representation of open research activities and outputs in research planning - and ultimately in research practice - actually increases.
- Including open research objectives in research planning policies and processes will encourage researchers to integrate open research practices in their research planning and to plan for the production of open research outputs.

## Maturity scale

| No Action | Emerging | Evolving | Sustained |
|---|---|---|---|
| Open research is not considered in institutional and individual research planning activities. | There is some use of open research criteria in institutional and individual research planning activities, but these are not fully aligned with institutional research and assessment strategies. | Open research criteria are defined and reported in institutional and individual research planning activities. Planning identifies open research objectives and links these to institutional strategy related to open research and recognition and reward. | Open research criteria are systematically used and reported in institutional and individual research planning activities. There is evidence of a sustained increase in setting and reporting against open research objectives. Strategic priorities related to open research inform institutional planning. |

## Progress actions

Here are suggestions for key actions that can be taken to progress from one level of the maturity framework to the next. These can be considered when you develop an institutional action plan.

### No Action to Emerging

- Identify open research as an area of strategic focus in research planning activities at institutional, group and individual level.
- Develop some open research objectives for use in research planning activities, e.g. relating to open access and data sharing.

### Emerging to Evolving

- Develop more systematic open research objectives in research planning, aligned to institutional open research strategy and criteria of recognition and reward for open research.
- Identify relevant measures to be collected and reported, and implement reporting against specified open research objectives in relevant research planning and management activities.

### Evolving to Sustained

- Demonstrate systematic integration of open research objectives in research planning at institutional, intra-institutional and individual level.
- Demonstrate substantive progress in implementation and reporting of open research objectives in relevant planning and research management activities.

## Main areas of activity

### Including open research objectives in research planning

Given the dominance of the research publication as the global currency of research, institutional planning objectives will remain largely focused on publications and will only practically engage with a greater diversity of outputs as the result of a sustained effort. The same planning framework will influence the definition of objectives for institutional research units (Schools, Departments, research divisions, research groups) and for individuals.

Research planning at institutional, unit and individual level has the power to define what is important to the institution, and to influence research practice. It can drive adoption and use of open research practices, and ensure that open research outputs have greater visibility within institutional systems that support the planning, management and ultimately the assessment of research. But planning strategy will need to be aligned and supported at all levels of the institution. There are likely to be challenges in ensuring consistency where planning activities are organised and managed at different levels by different stakeholders.

Research planning will be informed by research assessment expectations. Institutional-level research planning will be influenced by the eligibility and assessment criteria of the REF and the requirements of funders among other factors. These expectations will in turn inform planning and objectives for intra-institutional research units and for individual researchers. There will be policies and processes associated with these activities, which must be updated to take account of requirements and expectations related to recognition and reward for open research. Changes will need to be supported by communications with research leaders and managers, provision of guidance, and professional services support. Training may also need to be provided. Further information is provided in the Guidance and training section.

As it becomes easier to cite and provide access to a wider range of open research outputs by means of trustworthy research infrastructure and persistent identifiers, and to quantify aspects of their use by means of reliable indicators, they will acquire greater visibility within institutional systems. This will make it easier to specify measurable objectives related to them and to build institutional planning activities and services around them. In this way, open research objectives could be cascaded through the institution. For example:

- at an institutional level, research planning could set open research KPIs/objectives, e.g. to increase numbers of datasets deposited in repositories and cited from research publications. Information

could be extracted from data availability statements associated with publications, although systems and workflows will be required to capture and analyse this information.

- support for open research is an aspect of the 'People, Culture and Environment' element of the REF, and the 'Contribution to Knowledge and Understanding' element will enable institutions to evidence a greater diversity of research activities and outputs.[1] REF planning can anticipate these requirements and work with the institution's open research leadership and support to begin developing its strategy for addressing them;
- research units could be asked to define open research objectives appropriate to the disciplines and types of research they cover, to work with their researchers to increase relevant activities and outputs, and to report progress upwards. Dedicated professional services support could be provided to boost capacity, for example through tailored training sessions or workshops, and one-to-one expert support for specific practices, such as pre-registration, data sharing and software publishing. Objectives could also be set to build open research capacity in strategic areas through recruitment and promotion;
- within the wider frame of institutional and local open research objectives, individual research planning objectives can be tailored to the researcher's specific context and aligned to open research criteria for promotion. This might involve development of individual research plans focusing on the acquisition of open research skills or the production and communication of open research outputs in addition to publications.

These requirements may inform design and use of systems for collecting and managing open research information, as discussed in the Support, systems and processes guide.

[1] Research England (2023), 'Research Excellence Framework 2028: Initial decisions and issues for further consultation'. https://www.ukri.org/publications/ref2028-initial-decisions-and-issues-for-further-consultation/.

# Glossary

## Agreement on Reforming Research Assessment

Published in 2022 by the Coalition for Advancing Research Assessment, the Agreement is based on ten Commitments, and establishes a common direction for research assessment reform to which organisations can subscribe. Signatory institutions agree to undertake a reform of their research assessment criteria, tools and processes in line with the Agreement's Principles and Core Commitments. They commit to develop and share with the CoARA within one year of signing the Agreement an action plan for 'reviewing or developing criteria, tools and processes in line with the core Commitments'. They also agree to regularly demonstrate progress against this action plan, with a touch point within five years of signing the Agreement.

## Coalition for Advancing Research Assessment (CoARA)

Signatories to the Agreement on Reforming Research Assessment can apply to become members of the CoARA. Membership of the international Coalition provides access to tools, networks and working groups to facilitate sharing of good practice and rapid capability-building. Members may also join a National Chapter where this has been established.

## Contributor

Anyone who contributes to or enables a research activity or output; the term may refer more specifically to non-academic research contributors as distinct from academic researchers. Such contributors might include technicians, data scientists and research software engineers, among others. We support an inclusive research culture that acknowledges the collaborative nature of much research and that recognises and rewards all contributions to research.

## Open research

By this term we mean research and research outputs that are accessible, transparent, reproducible (where relevant) and re-usable. Open research practices include open access publication of research, and sharing other research and research-related outputs as openly as possible using standard licences that facilitate re-use. Relevant outputs may include research data, code, software, digital resources, preregistered

study designs, methods and protocols, preprints, peer reviews and hardware designs. Open research may also include citizen science that involves members of the public in the design and execution of research. The principles of open research are affirmed in the UNESCO Recommendation on Open Science adopted by member states (see entry below), and are widely recognised by funders[1] and research-performing organisations[2]. Our definition of open research is intended to recognise common understanding without attempting to be definitive; we recognise that institutions will define open research in different ways and will highlight different aspects of the concept to reflect local circumstances and requirements.

## Open science

In the global discourse about openness in academic knowledge and practice, the term open science is often used (as in the UNESCO Recommendation on Open Science, see below). 'Science' in this use derives from Latin *scientia* and denotes knowledge in general, not the knowledge produced exclusively by scientific disciplines. While open science includes open research, it is a more capacious concept that embraces a broader range of open practices, including engagement of non-academic actors, e.g. through impact development and public engagement. The OR4 toolkit is primarily concerned with open research, but it necessarily refers to and situates itself within the global discourse about open science and open knowledge practice in general. Definitions of all major open science terms and initiatives, alongside further supporting resources, can be found in the Framework for Open and Reproducible Research Training Glossary.

## Recognition and reward

HR frameworks frequently discuss 'reward and recognition' together, as a unitary concept.[3] Here we understand reward as 'a mostly *monetary* or *tangible* acknowledgment of someone's efforts or success'.[4] By contrast, recognition is largely *relational*, as captured in the acknowledgment of someone's success through verbal or written feedback as well as via representational mechanisms, such as awards or prizes.[5] As a project, our focus is mainly on reward, with particular emphasis on career advancement through recruitment or promotion.

[1] For example: UKRI, 'Open research'. https://www.ukri.org/what-we-do/good-research-resource-hub/open-research/; European Commission, 'Open Science'. https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science_en.

[2] Sheppard, N. (2020, since updated), 'Open access is not enough: reproducible science, research and scholarship'. UKCORR. https://www.ukcorr.org/2020/12/02/open-access-is-not-enough-reproducible-science-research-and-scholarship/

[3] See, for example, Chalmers, D. (2011), 'Progress and challenges to the recognition and reward of the scholarship of teaching in higher education'. Higher Education Research & Development, 30(1), 25-38. https://doi.org/10.1080/07294360.2011.536970.

[4] Definition taken from: Cotton, C., Gifford, J. and Young, J. (2022), *Incentives and recognition: an evidence review. Practice summary and recommendations.* London: Chartered Institute of Personnel and Development, p. 3. https://www.cipd.org/uk/knowledge/evidence-reviews/evidence-financial-incentives/.

[5] Akafo, V., and Boateng, P. A. (2015), 'Impact of reward and recognition on job satisfaction and motivation'. European Journal of Business and Management, 7(24), 112-124. https://www.iiste.org/Journals/index.php/EJBM/article/view/25095.

## Research leaders and managers

Those with senior level responsibility for research strategy and performance, such as PVCs for Research or Deans, and those with management responsibility for researchers and research activity within organisational units of the institution, such as heads of faculties, schools, departments or research divisions.

## Researcher

Anyone engaged in undertaking research and producing research outputs. While the focus of this resource is on practices for the assessment of academic researchers, it may also be relevant to others who make contributions to research which may be recognised and rewarded by organisations, including professionals such as technicians, data scientists and research software engineers.

## Researcher assessment

Practices used by institutions for the assessment of individual researchers, in their bearing on the granting of recognition and rewards, for example by appointment to a role, completion of probation, promotion, and the allocation of funding. Research assessment used for other purposes, such as selection of outputs for submission to the REF, and the assessment of those outputs by REF panels, is not the focus of this toolkit. But discussion of researcher assessment often takes place in the context of and with reference to the wider framework of research assessment and the research agenda for research assessment reform.

## Responsible research assessment

Research assessment that is aligned to the principles of the San Francisco Declaration on Research Assessment (DORA, see below), the Leiden Manifesto for Research Metrics,[6] the Metric Tide report,[7] and the Agreement on Reforming Research Assessment (see above). Responsible research assessment is an essentially qualitative exercise, in which quantitative indicators are used appropriately in support of expert peer review. It is transparent in its criteria and methods, recognises the full range of activities and outputs that contribute to the quality and impact of research in addition to the production of peer-reviewed publications, and it values integrity, rigour and openness in the conduct and communication of research. It recognises the variety of roles and career pathways in research, and acknowledges and promotes diversity, equality and inclusiveness.

[6] Hicks, D. et al. (2015), 'Bibliometrics: The Leiden Manifesto for research metrics'. Nature 520, 429–43. https://doi.org/10.1038/520429a.

[7] Wilsdon, J. et al. (2015), 'The metric tide: report of the Independent Review of the Role of Metrics in Research Assessment and Management'. https://www.ukri.org/publications/review-of-metrics-in-research-assessment-and-management/.

## San Francisco Declaration on Research Assessment (DORA)

Published in 2013, the San Francisco Declaration on Research Assessment was the first substantial initiative to articulate the case for research assessment reform. Many institutions and individuals have signed up to the Declaration and initiated reform activities based on its recommendations. It has become a worldwide initiative covering all scholarly disciplines and all key stakeholders including funders, publishers, professional societies, institutions, and researchers.

## Stakeholder group

A group of stakeholders representing relevant areas of interest and knowledge within the institution convened to undertake action related to a defined strategic objective, such as development of open research culture and practice, or the implementation of responsible research assessment policy and practice.

## UNESCO Recommendation on Open Science

Adopted in November 2021 by the 193 UNESCO member states, the UNESCO Recommendation on Open Science provides an international framework for open science policy and practice. It 'outlines a common definition and shared values, principles and standards for open science at the international level, and it proposes actions to support fair and equitable open science for all, at individual, institutional, national, regional and international levels'.