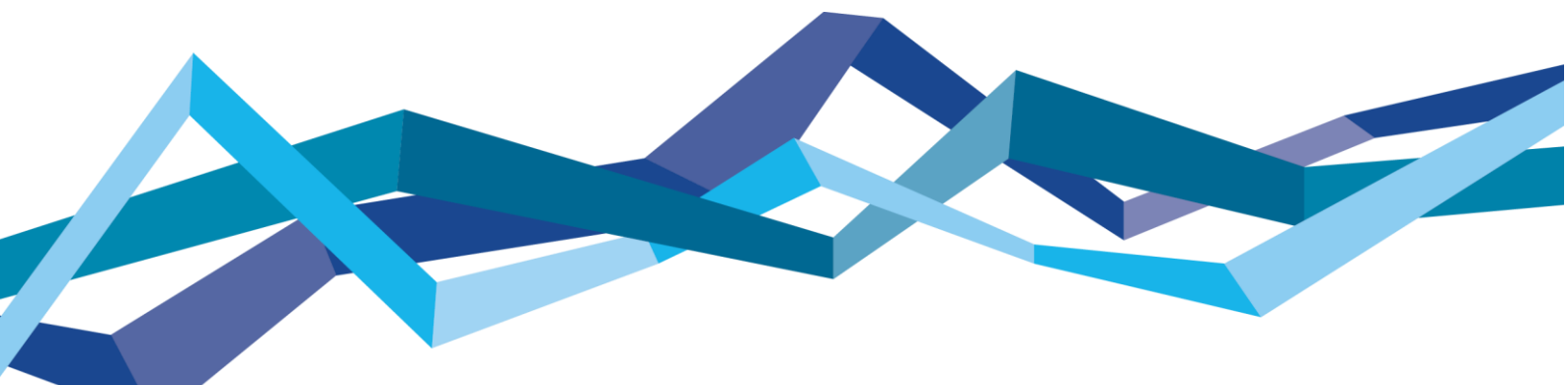# AGREEMENT ON REFORMING RESEARCH ASSESSMENT

4 July 2022

As signatories of this Agreement, we agree on the need for reform of research assessment practices. Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer-review is central, supported by responsible use of quantitative indicators. This is fundamental for, among other purposes, deciding which researchers to recruit, promote or reward, for selecting which research proposals to fund, and for identifying which research units and organisations to support.

In the context of this Agreement research assessment encompasses:

- The assessment of research performing organisations and research units, by assessment authorities, research funding and performing organisations, for the purposes of allocating funding; accountability for public investment; and informing decisions on research priorities and improving the definition and implementation of research strategies.

- The assessment of research projects by assessment authorities, research funding and performing organisations, and prize awarding organisations, for the purposes of allocating funding; informing project management and future research funding decisions; and decisions on prizes and awards.

- The assessment of individual researchers and research teams by research funding and performing organisations and prize awarding organisations, for the purposes of allocating funding; recruitment and hiring; promotion; professional development review; and decisions on prizes and awards.

The Agreement focuses on the specific challenges in reforming research assessment of researchers, research units and research organisations. Research performance of countries is not considered. Performance reviews of institutions, which often consider broader activities than research, are beyond the scope of this Agreement. While academic assessment is beyond the scope, organisations could take the opportunity to extend the Principles and Commitments to the academic assessment.

This Agreement sets a common direction for reform of research assessment practices, while respecting the autonomy of organisations.

We commit to realise reform through a Coalition of research funding organisations, research performing organisations, national/regional assessment authorities and agencies, as well as associations of the above organisations, learned societies and other relevant organisations, that is global in scope. We will work together to enable systemic reform on the basis of common principles within an agreed timeframe, and to facilitate exchange of information and mutual learning between all those willing to improve research assessment practices.

For this purpose, **we agree to**:

I.   Base our actions on the following Principles:

Principles for overarching conditions

- Comply with ethics and integrity rules and practices, and ensure that ethics and integrity are the highest priority, never compromised by any counter-incentives. Verify before or during assessment that the highest standards of general and research- specific ethics and integrity are met. Value methodological rigour to guard against sources of bias, and promote extended forms of professional and scientific integrity, showing adherence to moral standards of conduct, and include behaviours such as early sharing of research data and results, building on the work of others, and subjecting oneself to critical external validation.

- Safeguard freedom of scientific research. By putting in place assessment frameworks that do not limit researchers in the questions they ask, in their research implementation, methods or theories. By limiting the assessment frameworks to only those necessary, as assessment must be useful for researchers, institutions and funders.

- Respect the autonomy of research organisations. By safeguarding the independence of research performing organisations in the evaluation of their researchers while implementing the present principles, yet striving to prevent contradictions between the assessment of research, researchers and institutions, and between institutions, to avoid fragmentation of the research and innovation landscape and to enable the mobility of researchers.

- Ensure independence and transparency of the data, infrastructure and criteria necessary for research assessment and for determining research impacts; in particular by clear and transparent data collection, algorithms and indicators, by ensuring control and ownership by the research community over critical infrastructures and tools, and by allowing those assessed to have access to the data, analyses and criteria used.

Principles for assessment criteria and processes

Quality and impact

- Focus research assessment criteria on quality. Reward the originality of ideas, the professional research conduct, and results beyond the state-of-the-art. Reward a variety of research missions, ranging from basic and frontier research to applied research. Quality implies that research is carried out through transparent research processes and methodologies and through research management allowing systematic re-use of previous results. Openness of research, and results that are verifiable and reproducible where applicable, strongly contribute to quality. Openness corresponds to early knowledge and data sharing, as well as open collaboration including societal engagement where appropriate. Assessment should rely on qualitative judgement for which peer-review is central, supported by responsibly used quantitative indicators where appropriate.

- Recognise the contributions that advance knowledge and the (potential) impact of research results. Impact of research results implies effects of a scientific, technological, economic and/or societal nature that may develop in the short, medium or long-term, and that vary

according to disciplines and research types (e.g. basic and frontier research vs. applied research).

Diversity, inclusiveness and collaboration

- Recognise the diversity of research activities and practices, with a diversity of outputs, and reward early sharing and open collaboration. Consider tasks like peer review, training, mentoring and supervision of Ph.D candidates, leadership roles, and, as appropriate, science communication and interaction with society, entrepreneurship, knowledge valorisation, and industry-academia cooperation. Consider also 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. Recognise that researchers should not excel in all types of tasks and provide for a framework that allows researchers to contribute to the definition of their research goals and aspirations.

- Use assessment criteria and processes that respect the variety of scientific disciplines, research types (e.g. basic and frontier research vs. applied research), as well as research career stages (e.g. early career researchers vs. senior researchers), and that acknowledge multi-, inter-, and trans-disciplinary as well as inter-sectoral approaches when applicable. Research assessment should be conducted commensurately to the specific nature of scientific disciplines, research missions or other scientific endeavours.

- Acknowledge and valorise the diversity in research roles and careers, including roles outside academia. Value the skills (including open science skills), competences and merits of individual researchers, but also recognise team science and collaboration.

- Ensure gender equality, equal opportunities and inclusiveness. Consider gender balance, the gender dimension, and take into account diversity in the broader sense (e.g. racial or ethnic origin, sexual orientation, socio-economic, disability) in research teams at all levels, and in the content of research and innovation.

II. Implement the following Commitments:

Core commitments

The core commitments include two commitments to enable better recognition of the diverse practices and activities that maximise the quality of research as well as two commitments to enable a move away from the inappropriate uses of metrics.

1. Recognise the diversity of contributions to, and careers in research according to the needs and the nature of the research

Purpose: This commitment will broaden the recognition of the diverse practices and activities as well as careers in research, considering the specific nature of research disciplines and other research endeavours.

Scope: Changes in assessment practices should enable recognition of the broad diversity of:

- valuable contributions that researchers make to science and to the benefit of society, including diverse outputs beyond journal publications and irrespective of the language used;

- practices that contribute to robustness, openness, transparency, and inclusiveness of research and the research process including peer-review, teamwork and collaboration;

- activities including teaching, leadership, supervision, training and mentoring.

It is further important that assessment facilitates recognition and valorisation of diverse roles and careers in research, including data steward, software engineer and data scientist roles, technical roles, public outreach, science diplomacy, science advice and science communicator roles to name a few. It is recognised that current practice is often too narrow and limiting, and hence the goal cannot be to replace the narrow criteria we wish to move away from by different but equally narrow criteria. Rather, the aim is to enable organisations to broaden the spectrum of what they value in research while acknowledging that this may vary across disciplines and that each individual researcher should not be expected to contribute to all activities simultaneously.

2. Base research assessment primarily on qualitative evaluation for which peer-review is central, supported by responsible use of quantitative indicators

Purpose: This commitment will enable the move towards research assessment criteria that focus primarily on quality while recognising that responsible use of quantitative indicators can support this where this is meaningful and relevant, which is context dependent.

Scope: Research assessment should rely primarily on qualitative assessment for which peer-review is central, supported by responsibly used quantitative indicators where appropriate. Peer-review is the most robust method known for the assessment of quality and has the advantage that it is in the hands of the research community. It is important that peer-review processes are designed to meet the fundamental principles for rigor and transparency[1]: expert assessment; transparency; impartiality; appropriateness; confidentiality, integrity and ethical considerations; and gender, equality and diversity. To address biases and imperfections that any method is prone to, the research community is regularly re-assessing and improving peer-review practices. Revised, or potentially new, criteria, tools and processes that are appropriate for the assessment of quality could be explored alongside peer-review. Moving towards assessment practices that rely more heavily on qualitative methods might require additional efforts from researchers. Researchers should be recognised for these efforts and their contributions to reviewing peers' work should be valued in their career progression.

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1 Global Research Council (2018): Statement of Principles on Peer/Merit Review

3. Abandon the inappropriate uses in research assessment of journal- and publication-based metrics, in particular the inappropriate uses of journal impact factor (JIF) and h-index

Purpose: This commitment will reduce the dominance of a narrow set of quantitative journal- and publication-based metrics.

Scope: Inappropriate uses of journal- and publication-based metrics in research assessment should be abandoned. This means, in particular, moving away from using metrics like journal impact factor (JIF), article influence score (AIS) and h-index as proxies for quality and impact. 'Inappropriate uses' include:

- relying exclusively on author-based metrics (e.g. counting papers, patents, citations, grants, etc.) to assess quality and/or impact;

- assessing outputs based on metrics relating to publication venue, format or language;

- relying on any other metrics that do not properly capture quality and/or impact.

4. Avoid the use of rankings of research organisations in research assessment

Purpose: This commitment will help avoid that metrics used by international rankings, which are inappropriate for assessing researchers, trickle down to research assessment. It will help the research community and research organisations regain autonomy in shaping assessment practices, rather than having to abide by criteria and methodologies set by external commercial companies. This could include retaining control over the methodologies and data used in 'fair and responsible'[2] rankings.

Scope: Recognising that the international rankings most often referred to by research organisations currently are not 'fair and responsible', the criteria used by these rankings should not trickle down to the evaluation of individual researchers, research teams and research units. Research organisations also should be mindful that public communication (e.g. active advertising of an institution's rank) can contribute to the perception that research quality conflates with ranking positions.

Where ranking approaches are deemed unavoidable, which could be the case for forms of evaluation beyond the scope of this Agreement such as benchmarking and research performance reviews of countries or institutions, the methodological limitations of such approaches should be acknowledged, and institutions should avoid trickle-down effects on research assessment.

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[2] As defined, for example, by INORMS: https://inorms.net/wp-content/uploads/2019/09/what-makes-a-good-ranking-list-of-characteristics-version-2.pdf

Supporting commitments

The supporting commitments include three commitments to enable the move towards new criteria, tools and processes for research assessment, as well as three commitments to facilitate mutual learning, communicate progress and ensure that new approaches are evidence informed.

5. Commit resources to reforming research assessment as is needed to achieve the organisational changes committed to

Purpose: This commitment will ensure that organisations allocate the necessary resources, whether in the form of budget or staff capacity, to improve research assessment practices within their agreed timeframe.

Scope: Allocation of resources by assessment authorities and research funding and performing organisations is a necessary condition for reforming assessment practices. Resources should be allocated as is needed for each organisation to achieve the changes that will enable adherence to the Principles and implementation of the Commitments. This includes resources to:

- implement changes in research assessment, including planning and monitoring of progress;

- raise awareness among all actors;

- educate, train and support researchers and any other staff involved with assessment, including peer-reviewers and assessors; and

- support the necessary infrastructure such as tools and services for transparent collection and processing of data on research assessment practices.

Particular attention should be paid to resources made available to enable the engagement of researchers across all career stages in reforming research assessment.

6. Review and develop criteria, tools and processes for research assessment

6.1 CRITERIA FOR UNITS AND INSTITUTIONS

With the direct involvement of researchers across career stages and research organisations, review and develop criteria for assessing research units and research performing organisations, while promoting interoperability

Purpose: This commitment will ensure that national / regional / organisational authorities and evaluation agencies review and, where needed, develop criteria for the assessment of research performing units and organisations, in accordance with the Principles. It will foster responsible use of metrics in the assessment of research performing units and organisations and help to prevent contradictions or incompatibilities between the assessment of research, researchers and research performing organisations. It will also safeguard interoperability of adapted or newly developed assessment processes.

Scope: Criteria should be reviewed and adapted, and new criteria developed where needed, based on evidence, for the assessment of research performing units and

organisations, including universities, research centres, and research infrastructures. This should be done in close collaboration with those that will assess and will be assessed, including research organisations as well as researchers. It should increase the ability to assess quality by enabling recognition of all contributions to quality research by research units and institutions. This includes recognition of early sharing of data and results, open collaboration, and teamwork and consideration of contributions to the research ecosystem, to knowledge generation and scientific, technological, economic, cultural and societal impact. National / regional / organisational authorities and evaluation agencies should coordinate to ensure their methodologies and processes are interoperable, while simultaneously respecting the necessary adaptation to each context.

6.2 CRITERIA FOR PROJECTS AND RESEARCHERS

With the direct involvement of researchers across career stages, review and develop criteria, tools and processes for the assessment of research projects, research teams and researchers that are adapted to their context of application

Purpose: This commitment will enable recognition of the diverse research activities and practices in research through the revision and development of assessment criteria, tools, and processes. It will ensure that organisations review their processes and make tangible changes by developing existing or new assessment approaches, individually or in collaboration with others, in accordance with the Principles.

Scope: Criteria, tools and processes should be reviewed and developed together with researchers in different disciplines and at different career stages and should enable recognition of the diversity of research activities and practices that contribute to research quality, including diverse outputs in different languages. This should increase the ability to assess quality by enabling recognition of all contributions to quality research from research projects and by researchers and research teams. This includes recognition of early sharing of data and results, open collaboration, and teamwork. Reformed practices for assessing individual researchers should consider future potential alongside track record and take into account researchers' individual contexts and careers. They should recognise that researchers cannot excel in all types of tasks and provide for a framework that allows researchers to contribute to the definition of their research goals and aspirations. Research assessment by research funders should consider disciplinary, multi-, inter-, and trans-disciplinary research as well as contribution to knowledge generation and scientific, technological, economic, cultural and societal impact.

7. Raise awareness of research assessment reform and provide transparent communication, guidance, and training on assessment criteria and processes as well as their use

Purpose: This commitment will ensure that organisations raise awareness of the reform with all actors. It will ensure that organisations transparently communicate on the criteria, tools and processes used for research assessment and train researchers and assessors on their use.

Scope: Without widespread awareness of the reform and training of those assessed and, crucially, those assessing, progress will be slow, if not impossible. Organisations should be clear and transparent about assessment processes and the tools and criteria they use. They should make guidance on their assessment approaches openly available and train those involved in the assessment process. They should allow those assessed to have access to the criteria, data and reviews or deliberation outcomes used in their assessment within the limits of confidentiality. Particular attention should be paid to raising awareness with researchers across all career stages.

8. Exchange practices and experiences for mutual learning within and beyond the Coalition

Purpose: This commitment will ensure organisations exchange and make use of information for mutual learning. It will help avoid fragmentation, contribute to coherence of assessment practices between organisations, and enable mobility of researchers. It also will enable those further ahead to share approaches and lessons learned, to the benefit of those that are less advanced in their reform journey.

Scope: While respecting each other's autonomy, organisations should share practices and experiences to facilitate mutual learning. This should include contributing to guidance and common approaches to prevent as much as possible contradictions or incompatibilities between assessment practices used across different organisations. It should also include sharing of lessons learned to ensure continuous mutual improvements.

9. Communicate on progress made on adherence to the Principles and implementation of the Commitments

Purpose: This commitment will ensure organisations update one another on progress made. It will foster self-reflective monitoring of adherence to the Principles and progress towards meeting the Commitments.

Scope: Demonstrating progress made towards implementing the Commitments and adherence to the Principles is an important part of this initiative. Organisations should commit to regularly update each other and their communities on their adherence and their progress, thereby being open to scrutiny from their own communities but also sharing their successes as well as challenges and communicating their experiences to facilitate collective progress.

10. Evaluate practices, criteria and tools based on solid evidence and the state-of-the-art in research on research and make data openly available for evidence gathering and research

Purpose: This commitment will ensure that decisions on assessment approaches are evidence informed. It will help organisations to self-reflect, gain understanding on whether assessment practices achieve the desired goals and engage in evolutive assessment based on new evidence that becomes available. It will also help to ensure control and ownership by the research community over data on research assessment.

Scope: Growing evidence shows that the current assessment processes which rely on publication- and journal-based metrics are prone to multiple biases. As approaches based on more qualitative assessment of research, are being piloted by several organisations (e.g. narrative and evidence-based CVs, new assessment frameworks and indicators), it is important that the impact of these methods is monitored and evaluated based on evidence and rigorous methods. To make this possible, organisations should contribute to the evidence base on research assessment. This could be achieved for example by making data available that can be used for research on research, y participating in research on research or by funding research on research. Data sharing should be the minimum commitment and data should be shared through open infrastructure, while respecting the protection of personal data.

III. Organise and operate the Coalition along the following principles:

- All signatories of the Agreement will be entitled to become members of the Coalition and may leave the Coalition at any time.

- The Coalition will be composed of its members; their General Assembly will decide its detailed organisation and the rules and procedures for its operation.

- The Coalition will offer a space for mutual learning and collaboration that supports and facilitates the implementation of the Commitments by the members, while respecting their autonomy.

- For this purpose, working groups will be established and work as 'Communities of practice' on specific topics. Working groups will be proposed at the initiative of members and participation from other members will be voluntary. Other means, such as workshops or webinars, may also be used to support mutual learning and collaboration.

- Communicating the progress made by individual members towards implementation of the Commitments will be primarily based on self-assessment shared publicly. Such a trust-based approach is expected to facilitate exchange of information and collaboration, including joint experimentation when appropriate.

- Support to the work of the Coalition will consist primarily of cash and in-kind contributions from its members, or funding obtained from research funding organisations.

- The work of the Coalition will be supported by a 'lean' organisation. Decision-making will rely on the General Assembly of members, as well as on structures such as a Steering Board, with support from a Secretariat. The Coalition should have the capacity to manage its budget.

- Mechanisms for periodic interactions with, and involvement of, national and regional authorities will ensure that national/regional policies and frameworks can be conducive to the Coalition work.

- The Coalition will seek collaboration, complementarities and synergies with other existing initiatives and organisations, as appropriate.

IV. Respect the following timeframe:

- Signatories of this Agreement agree that they will share with each other and with their community, **by end of 2023 or within one year of signing the Agreement**, how their organisation has started, according to an action plan with defined milestones, the process of reviewing or developing criteria, tools and processes in line with the core Commitments.

- Signatories of this Agreement agree that they will regularly demonstrate progress towards reviewing, developing and evaluating criteria, tools and processes that fulfil the core Commitments, with a touch point **at end of 2027 or within five years of signing the Agreement**, by which the organisation aims to have worked through at least one cycle of review and development of its assessment criteria, tools and processes.

   Signatories that are not assessing research projects, researchers, research units or research performing organisations will commit to contribute to the reform and share progress with each other and the community by the same timeframe.

By signing this Agreement, signatories are entitled to become a member of the Coalition. While acknowledging that this Agreement does not have any legally binding effect, it represents a public commitment to contribute actively and constructively to reforming research assessment.

_____
Signature and date

_____
Name and function of signatory representing institution

_____
Name, function and contact details at institution for coordinating follow-up of signature

The following annexes do not form an integral part of the Agreement; they are provided to support its implementation. Annex 1 outlines the need for reform; Annex 2 clarifies the terminology used; Annex 3 suggests a reform journey; and Annex 4 provides the start of a toolbox with practical tools and options for consideration.

Annex 1 – The need for reforming research assessment

Research assessment reform

Shared commitments for research assessment reform, to be achieved in an agreed timeframe, will enable recognition of the diverse outputs, practices and activities that maximise the quality of research and the resulting impacts, facilitate moving away from inappropriate uses of journal- and publication-based metrics, and further strengthen trust in research.

There is broad agreement on the need for research assessment reform - There is broad agreement among the research community that to further support the quality of research and the attractiveness of research environments, reform of research assessment practices is needed. A variety of interconnected reasons underlies this, including i) to enable research assessment to support positive research cultures; ii) to ensure assessment practices stay relevant as research processes and expectations of research evolve; and iii) to live up to the increasing demands placed on research by the many societal, environmental, democratic, and economic challenges society faces. While motivations for reform might differ, they all point in the same direction; the need for reform with the primary objective to further support the quality of research.

Assessment processes relying predominantly on journal- and publication-based metrics are known to result in a 'publish or perish' culture that falls short of recognising diverse approaches and could come at the expense of quality – The dominance in research assessment of narrow journal- and publication-based metrics, that are often used inappropriately, can form a barrier to the recognition of diverse contributions and may result in negative effects on the quality and impact of research. Examples of negative effects include: promoting quantity and speed at the expense of quality and rigour; emergence of predatory journals and conferences; publishing in paywalled journals because of their high impact factors despite the availability of open access alternatives; risk-aversity because taking risks provides less security to produce publications; excessive attention for rankings that hinders collaboration; and waste of efforts, time and resources due to duplication of work since 'negative' findings go largely unreported. Assessment practices in research should induce a research culture that recognises collaboration, openness, and engagement with society, and that provides opportunities for multiple talents.

Joint commitment is needed that builds on progress made - Several organisations, inspired by the [San Francisco Declaration on Research Assessment (DORA)](), the principles proposed by the [Leiden Manifesto]() for research metrics, and the [Hong Kong Principles]() for assessing researchers, have already started reforming research assessment. Coordinated action now is needed to build on this and gather sufficient mass to enable a systemic reform of research assessment practices.

Coalition on research assessment reform

The Coalition invites all organisations to join, and thereby contribute to advancing research assessment reform, and enable recognition of the diverse practices and activities that maximise the quality of research.

Collaboration on the basis of common principles will enable progressing research assessment reform - The progress already made is uneven across research organisations and countries and ongoing efforts are fragmented. Collaboration on research assessment reform will allow signatories to move forward on the basis of common principles. This will also diminish the perceived 'first-mover-disadvantage' linked to making changes to a culture of research assessment based on quality, trust and risk-taking that is applied globally.

The Coalition will enable signatories to test different approaches while avoiding contradictions across assessment practices - The Coalition will facilitate exchange of information and mutual learning, and will enable access to tools, networks and working groups so that decisions can be evidence informed, and so that those currently less advanced in their reform journey can benefit from established good practice and build capability swiftly. It will allow signatories to develop, pilot and implement, individually or in collaboration, assessment criteria, tools and processes, while avoiding contradictions across assessment systems, types and purposes, through continuous dialogue. The Coalition does not aim to overhaul existing practices overnight but rather to facilitate reform through an iterative process, while leaving room for diversity of starting points and approaches.

To reform research assessment, the Coalition has developed this Agreement, whereby organisations commit to implement tangible changes within an agreed timeframe and/or share insights on changes that have already been made - The Coalition on reforming research assessment is global in scope and brings together research funding organisations, research performing organisations, national/regional assessment authorities and agencies, as well as associations of the above organisations, learned societies and other relevant organisations, all willing and committed to improve research assessment practices within an agreed timeframe. Research organisations are at different levels of progress in reforms of research assessment. Organisations ahead with reforms will be able to share their insights and support the development of a coherent assessment ecosystem. Organisations that have not yet engaged in reforms will be able to identify and learn from successful ideas and practices.

Contextual considerations

Favourable framework conditions and sustainable funding are needed to achieve reform - Organisational reform initiatives sometimes are hampered by national regulations or limited autonomy in national systems. The Coalition calls on national administrations to ensure that national framework conditions facilitate reform. Current inappropriate uses of journal- and publication-based metrics might be exacerbated by the pressure research systems are under, because of very limited funding compared to the pipeline of talented researchers that are competing for that funding. Furthermore, the move towards more qualitative assessment could require additional resources if not accompanied by changes in assessment frequency. Sustainable

funding levels and a balance between competitive and non-competitive funding streams therefore will be critical for the reform.

Assessment practices should vary depending on the type and purpose of assessment concerned - Reformed practices for assessing individual researchers for recruitment or career evaluation should consider researchers' individual contexts and careers. Research units should be assessed not only based on their research outputs but also on their broader contribution to the research ecosystem. Research assessment by research funders should consider disciplinary, multi-, inter-, and trans-disciplinary research as well as contribution to knowledge generation and scientific, technological, economic, cultural and societal impact. Many research careers go beyond research and include teaching, patient care, academic citizenship and other roles, which is important in their evaluation. While this Agreement focuses on the specific challenges in improving research assessment, it could provide the opportunity for academic institutions to extend the Principles of this Agreement to the broader academic assessment that includes research, teaching and service to society.

Reform processes should enable the reinforcement of the autonomy, profile and strategic goals of research organisations and allow for differences in implementation – Reform will need to be flexible and adapted by research organisations to take into account the diversity of disciplines, the variety of competency areas and talents, the differences between cultures, countries and regions, the diversity of languages used in the performance and communication of research, the diversity of research maturity levels, the diversity of research organisations and organisational missions, as well as the differences between career stages, ranging from early career to senior. The direct involvement of researchers and organisations able to represent this diversity will be critical for successful reform.

Annex 2 – Glossary: clarification of terminology in the Agreement

Research assessment – In the context of this Agreement research assessment encompasses:

- The assessment of research performing organisations and research units, by assessment authorities, research funding and performing organisations, for the purposes of allocating funding; accountability for public investment; and informing decisions on research priorities and improving the definition and implementation of research strategies.

- The assessment of research projects by assessment authorities, research funding and performing organisations, and prize awarding organisations, for the purposes of allocating funding; informing project management and future research funding decisions; and decisions on prizes and awards.

- The assessment of individual researchers and research teams by research funding and performing organisations and prize awarding organisations, for the purposes of allocating funding; recruitment and hiring; promotion; professional development review; and decisions on prizes and awards.

Researcher – In the context of this Agreement the term researcher refers to all fields of research and scholarly pursuits and at all career stages, including doctoral candidates.

Research culture – In the context of this Agreement, we adopt the Royal Society's definition of research culture: 'Research culture encompasses the behaviours, values, expectations, attitudes and norms of our research communities. It influences researchers' career paths and determines the way that research is conducted and communicated.'[3]

Research on research – In the context of this Agreement, research on research (also known as meta-research, the science of science and meta-science) is defined as the study of research itself.

Quality – In the context of this Agreement, research quality is defined as is captured in the principles [under 'Quality and impact'].

Impact – In the context of this Agreement, impact is defined as is captured in the principles [under 'Quality and impact'].

Diversity – In the context of this Agreement, diversity is defined as is captured in the principles [under 'Diversity, inclusiveness and collaboration'].

Ethics and integrity – In the context of this Agreement, ethics and integrity are defined as is captured in the principles [under 'Principles for overarching conditions'].

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3 https://royalsociety.org/topics-policy/projects/research-culture/

Annex 3 – Reform journey: suggested process for achieving the Commitments

The reform journey[4] sets out a suggested, non-prescriptive step-by-step process to support organisations in achieving the Commitments. The journey is presented as chronological steps; however, the change process will likely not be chronological, and organisations can adapt the journey and start from the step that they deem more appropriate, based on their context and level of advancement throughout the journey.

1	**Allocate resources,** whether in terms of capacity or budget, to actively engage in the reform journey
2	**Communicate your intention to reform**, explain how you have started the process of reviewing or developing criteria, tools and processes in line with the core commitments
3	**Evaluate current assessment practices** in terms of alignment with the Principles and Commitments, consider also what works well currently and how this can be retained in parallel to any new practice - *Re-evaluate at fixed intervals, whenever broad reforms to assessments are implemented, or when problems are identified*
4	**Engage those being assessed in the development and design of assessment criteria and processes**, work with researchers to enable consideration of differences between disciplines and career levels
5	**Develop further existing and design new assessment criteria, tools, and processes** together with those who will assess and will be assessed; consider the diversity of contributions including diverse outputs beyond journal publications and in different languages; diverse practices including those that contribute to robustness, openness, transparency, and inclusiveness of research and the research process including peer-review, teamwork and collaboration; and diverse activities including teaching, leadership, supervision, training, and mentoring, according to the nature of each research discipline
6	**Interrogate further developed and new approaches** by working with those who will assess and will be assessed (e.g. who might new approaches discriminate against; how might they be gamed; what might be unintended consequences)
7	**Implement further developed and new assessment criteria, tools, and processes** according to the Principles and Commitments; consider awareness raising, rewards, policies, training, infrastructure, and capacity building and include collection of data to support monitoring, evaluation and mutual learning
8	**Evaluate further developed and new assessment criteria, tools, and processes**
9	**Share data / information, participate in mutual learning within and beyond the Coalition**, supported by mechanisms developed by the Coalition
10	**Coordinate with other organisations at national and international level, and promote international coordination and harmonisation**
11	**Continue to evolve assessment criteria, tools, and processes based on learning from own evaluations and those of others**

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4 Inspired by SCOPE (https://inorms.net/scope-framework-for-research-evaluation/)

Annex 4 – Toolbox: practical tools and options to consider

⚠️ **Note to the Reader:** we have added the draft toolbox to enable a more comprehensive overview. However, the toolbox is subject to continuous development and will take the form of a 'living' document / webpage.

Commitment	Examples of tools to support this commitment/ options to consider
Recognise the diversity of contributions to, and careers in research according to the needs and the nature of the research	• Enable greater diversity in possible **career paths and profiles** by recognising and recognising more diversity in competences and talents[5] • Use approaches where academics can make a mark in one or more **key areas important to them,** and allow the area profile of academics to change in the course of their career[6] • Use a **portfolio approach** to test competency or progression in different domains relevant to the researcher's role[7]
Base research assessment primarily on qualitative evaluation for which peer-review is central, supported by responsible use of quantitative indicators	• Consider specific actions captured under the **Leiden Manifesto**[8] • Explore **options** for assessment; as a rule of thumb, use quantitative indicators for quantitative things (if that is what is appropriate to assess): publications, funding, citations and students, and qualitative indicators (such as case studies, narratives or statements) for qualitative things: excellence, quality, value, impact, and be very cautious about using quantitative indicators for qualitative things[9] • Actively engage in and learn from research on research work to develop new improved metrics, and consider appropriateness of their use

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5 https://www.universiteitenvannederland.nl/recognitionandrewards/wp-content/uploads/2019/11/Position-paper-Room-for-everyone%e2%80%99s-talent.pdf

6 https://www.universiteitenvannederland.nl/recognitionandrewards/wp-content/uploads/2019/11/Position-paper-Room-for-everyone%E2%80%99s-talent.pdf

7 https://embassy.science/wiki/Resource:Ca0ed587-ac8e-4259-9cc7-74de01941cd1; https://assets-eu-01.kc-usercontent.com/546dd520-97db-01b7-154d-79bb6d950a2d/6eb2e1cc-068a-4283-b6de-a281868b749d/Qualification-portfolio-professors-UMC%20Utrecht.pdf

8 https://doi.org/10.1038/520429a

9 https://thebibliomagician.wordpress.com/2019/12/11/introducing-scope-aprocess-for-evaluating-responsibly/

Abandon the inappropriate uses in research assessment of journal- and publication-based metrics, in particular the inappropriate uses of journal impact factor (JIF) and h-index	• Consider specific actions captured under the San Francisco Declaration on Research Assessment (**DORA**)[10] and the **Leiden Manifesto**[11]
Avoid the use of international rankings of research organisations in research assessment	• Consider specific actions captured under the **INORMS**[12] tools for rethinking global university rankings • Consider the recommendations in the **Metric Tide** report[13]
Commit resources to reforming research assessment as is needed to achieve the organisational changes committed to	
Review and develop criteria, tools and processes for research assessment	
[Part 1 – Criteria for units and institutions] With the direct involvement of researchers across career stages and research organisations, review and develop criteria for assessing research units and research performing organisations, while promoting interoperability	• Consider a '**narrative CV for institutions**' that could include case studies on how early sharing of data or collaboration efforts have resulted in knowledge generation e.g. others building on shared data or collaboration leading to outputs or impacts that otherwise would not have been achieved
[Part 2 – Criteria for projects and researchers] With the direct involvement of researchers across career stages, review and develop criteria, tools and processes for the assessment of research projects and researchers, that are adapted to their context of application	• **Pilot** alternative/new assessment criteria, tools, and processes (e.g. narrative CV format, competency-based CV format, evidence-based CV format, diversification of research careers and associated career progression) – *a more comprehensive overview of options to consider is captured under 'tools to support steps in the reform journey'*
Raise awareness of research assessment reform and provide transparent communication, guidance, and training on assessment criteria and processes as well as their use	• Host **webinars** to inform applicants of assessment processes and allow for questions and answers • Provide **training, guidance and support** to assessment panels, committees and juries • Publish webpages and reports to **communicate the transparency** of research evaluation processes[14] • **Ensure transparency** of research assessment processes - good examples for promoting transparency include: strict conflict-of-interest regulations, applicant right-to-reply procedures, and open (non-anonymous) reviewing[15]

10 https://sfdora.org/read/

11 https://doi.org/10.1038/520429a

12 https://inorms.net/rethinking-global-university-rankings/

13 https://doi.org/10.13140/RG.2.1.4929.1363

14 https://www.scienceeurope.org/our-priorities/research-assessment/research-assessment-processes/

15 https://www.scienceeurope.org/our-priorities/research-assessment/research-assessment-processes/

Exchange practices and experiences for mutual learning within and beyond the Coalition	• Build national **consortia** on evaluation, consider existing national consortia for reforming responsible assessment: in Finland[16], Norway[17], and the Netherlands[18] • Foster an **international debate** on recognition and rewards
Communicate on progress made on adherence to the Principles and implementation of the Commitments	
Evaluate practices, criteria and tools based on solid evidence and the state of the art in research on research and make data openly available for evidence gathering and research	
Step in reform journey	**Examples of tools to support this step/ options to consider**
Allocate resources, whether in terms of capacity or budget, to actively engage in the reform journey	• Create an **organisational committee** on assessment policy
Communicate your intention to reform, explain how you have started the process of reviewing or developing criteria, tools and processes in line with the core commitments	• Consider the **SCOPE framework**[19] for research evaluation to support this step
Evaluate current assessment practices in terms of alignment with the Principles and Commitments, consider also what works well currently and how this can be retained in parallel to new practice – *Re-evaluate at fixed intervals, whenever broad reforms to assessments are implemented, or when problems are identified*	• Consider the **HuMetricsHSS Initiative approach**[20] to value-based assessment and the **SCOPE framework**[21] to support this step • Consider reviewing **assessment frequency**[22] • Consider **streamlining** application forms for capturing recurring application details (for example link to ORCID[23])

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16 https://doi.org/10.23847/isbn.9789525995282

17 https://www.uhr.no/en/front-page-carousel/nor-cam-a-toolbox-for-recognition-and-rewards-in-academic-careers.5780.aspx

18 https://recognitionrewards.nl/

19 https://inorms.net/scope-framework-for-research-evaluation/

20 https://humetricshss.org

21 https://inorms.net/scope-framework-for-research-evaluation/

22 https://doi.org/10.31222/osf.io/82rmj

23 https://sfdora.org/resource/swiss-national-science-foundation/

Engage those being assessed in the development and design of assessment criteria and processes, work with researchers to enable consideration of differences between disciplines and career levels	• Consider the **SCOPE framework** for research evaluation to support this step[24]
Develop further existing and design new assessment criteria, tools, and processes together with those who will assess and will be assessed	• Consider the future evolution of HRS4R[25] as a mechanism that could support institutions in the development of **recruitment processes** • Consider the **Open, Transparent and Merit-based Recruitment of Researchers (OTM-R)**[26] checklist of institutions[27] • Consider where in the **process** to test specific aspects e.g. what needs to be included in application materials versus in interviews or other steps of the process • Consider relevance of quantitative and qualitative **indicators**; use quantitative indicators for quantitative things and qualitative indicators for qualitative things[28] • Diversify **indicators** (Open science badges; Publons, ORCID, open peer review; CRediT; Reporting guidelines e.g. EQUATOR Network) and metrics (Altmetrics, PlumX)[29] • Consider post peer-review lottery for funding applications[30]
Consider the diversity of contributions	• Consider CV formats[31] that enable **consideration of diverse contributions** to knowledge, to training and development of other researchers, to the wider research community and to society • Value **diverse activities** (knowledge transfer activities; training and mentoring of researchers; public engagement actions; actions that contribute to a positive research culture; engagement with key stakeholders e.g. patients, professionals, political decision-makers) • Value **diverse outputs** (FAIR data sets, replication studies, registered reports[32], pre-prints) in different languages in accordance with the Helsinki initiative[33] • Value **diverse impacts**

24 https://inorms.net/scope-framework-for-research-evaluation/

25 https://euraxess.ec.europa.eu/jobs/hrs4r

26 https://cdn1.euraxess.org/sites/default/files/policy_library/otm-r-finaldoc_0.pdf

27 https://cdn5.euraxess.org/sites/default/files/policy_library/otm-r-checklist.pdf

28 https://thebibliomagician.wordpress.com/2019/12/11/introducing-scope-aprocess-for-evaluating-responsibly/

29 https://doi.org/10.31222/osf.io/82rmj

30 https://www.nesta.org.uk/feature/innovation-squared/reducing-bias-funding-decisions/

31 https://doi.org/10.31222/osf.io/82rmj

32 https://www.cos.io/initiatives/registered-reports

33 https://www.helsinki-initiative.org/read

	• Consider **limiting the number of outputs** considered (moving away from lists of outputs towards limited selection of key accomplishments and why they are important)[34]
Consider diverse research careers	• Value **diverse researcher career profiles** • Value data stewardship,[35] potentially as a crucial element of some researchers' role (avenue for **career diversification**)
Consider diverse practices including those that contribute to robustness, openness, transparency, and inclusiveness of research and the research process including peer-review, teamwork and collaboration	
robustness of research and the research process	• Assess alignment with **values** of research integrity • Value knowledge of **rigorous** experimental design[36] • Value contributions such as **peer review and editorial roles** • Value **teamwork and collaboration** • Value outputs associated with **robust, open, and transparent research** (FAIR data sets, replication studies, registered reports[37], pre-prints)
openness, transparency of research and the research process	• Consider the **UNESCO recommendation on open science**[38] • Value **activities associated with openness** (training, awareness raising, priority setting partnerships[39], outreach) • Value **outputs associated with openness** (FAIR data sets, pre-prints, open software, open code, translations)[40]
inclusiveness of research and the research process	• Value **inclusion of stakeholders** in the research process, from defining priority research questions to knowledge translation[41] • Consider **diversity** in research teams at all levels, and in the content of research and innovation

34 https://news.cancerresearchuk.org/2018/02/20/improving-research-evaluation-dora/

35 https://doi.org/10.1371/journal.pbio.3000737

36 https://doi.org/10.1371/journal.pbio.3000737

37 https://www.cos.io/initiatives/registered-reports

38 https://en.unesco.org/science-sustainable-future/open-science/recommendation

39 https://www.jla.nihr.ac.uk/about-the-james-lind-alliance/about-psps.htm

40 http://eurodoc.net/open-science-ambassadors-training/m1-open-science

41 https://www.umcutrecht.nl/en/science-in-transition

	• Consider the **EDI dimension**: - Consider 360[42] or organisational rather than individual references - Include in training for assessors implicit/unconscious bias training[43] - Consider post peer-review lottery for funding applications[44] - Consider gender blinding, blinding of other data prone to biases, e.g. moving educational history down in applications[45] • Include **EDI statement** in assessment processes[46]
Consider diverse activities including teaching, leadership, supervision, training, and mentoring, according to the nature of each research discipline	• Assess **competencies** relevant to a respective role[47] • Consider the **international initiative on Rewarding Teaching**[48] • Recognise **leadership competencies**
Interrogate further developed and new approaches by working with those who will assess and will be assessed (e.g. who might new approaches discriminate against; how might they be gamed; what might be unintended consequences)	• Consider the **SCOPE framework** for research evaluation to support this step[49]
Implement further developed and new assessment criteria, tools, and processes according to the Principles and Commitments; consider awareness raising, rewards, policies, training, infrastructure, and capacity building and include collection of data to support monitoring, evaluation and mutual learning	• Set up **training** programmes
Evaluate further developed and new assessment criteria, tools, and processes	• - Consider the SCOPE framework for research evaluation to support this step[50]

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42 https://doi.org/10.31222/osf.io/82rmj

43 https://royalsociety.org/topics-policy/publications/2015/unconscious-bias/

44 https://www.nesta.org.uk/feature/innovation-squared/reducing-bias-funding-decisions/

45 https://www.science.org/content/article/can-anonymous-faculty-searches-boost-diversity

46 https://ofew.berkeley.edu/recruitment/contributions-diversity/rubric-assessing-candidate-contributions-diversity-equity

47 Link to EU competence framework for researchers (Knowledge Ecosystem Project) / https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework/developing-the-vitae-researcher-development-framework

48 https://www.advancingteaching.com/

49 https://inorms.net/scope-framework-for-research-evaluation/

50 https://inorms.net/scope-framework-for-research-evaluation/

Share data / information, participate in mutual learning within and beyond the Coalition, supported by mechanisms developed by the Coalition	• Build national **consortia** on research assessment, consider existing national consortia for reforming responsible assessment: in Finland,[51] Norway,[52] and the Netherlands[53]
Coordinate with other organisations at national and international level, and promote international coordination and harmonisation	• Foster an **international debate** on recognition and rewards
Continue to evolve assessment criteria, tools, and processes based on learning from own evaluations and those of others	• Engage in **research on research**

51 https://doi.org/10.23847/isbn.9789525995282

52 https://www.uhr.no/en/front-page-carousel/nor-cam-a-toolbox-for-recognition-and-rewards-in-academic-careers.5780.aspx

53 https://recognitionrewards.nl/