ERA Action 9, part on improving the research assessment system
– State of play and exchange of views on the proposed way forward –

Background paper for the ERAC Plenary Policy Debate

30 September – 1 October 2021

Background

The research and innovation system is undergoing major transformations: the diversity of research tasks and required skills increases, and desired outputs are not restricted anymore to publications; a culture of sharing of knowledge and tools and of open collaboration becomes mainstream; and there is a growing need of multi-disciplinary approaches and collaboration to tackle ever more complex scientific questions and societal challenges.

The way research projects, researchers, research units, and research institutions are assessed is fundamental for a well-functioning research and innovation system. However, the current system often uses inappropriate and narrow methods to assess the quality, performance and impact of research, making the Journal Impact Factor (JIF) and the quantity of publications the unique proxies for quality, particularly in higher education institutions.

A research assessment system that triggers higher quality, more productive and impactful research and contributes to higher performing research units and institutions and more attractive research careers is essential to deliver on the European Research Area (ERA) priority to deepen a truly functioning internal market for knowledge.

The Commission Communication of 30 September 2020 on "A new European Research Area for R&I" proposed to incentivise open science practices by improving the research assessment system. The Council Conclusions on the new ERA of 1 December 2020 encouraged the Commission, Member States and stakeholders to support and implement open science practices in their reward and evaluation systems and strengthen their European coordination. In 2021, the Council Conclusions of 28 May on attractive and sustainable researchers' careers and working conditions invited Member States, the Commission, Higher Education Institutions (HEIs) and Research Performing Organisations (RPOs), and Research Funding Organisations (RFOs) to work together towards a broad development and application of modern assessment and rewarding practices in order to set the right incentives including for open science practices; it also underlined that the research assessment system should focus on excellence and impact rather than inappropriate bibliometric indicators.

Objectives and approach

The overarching objective of the ERA action is to facilitate and speed up changes so that the quality, performance and impact of research and researchers are assessed on the basis of more appropriate criteria and processes than proxies like the number of publications and where they are published, thereby enabling higher quality, more productive and impactful research, and contributing to more attractive research careers. There is also a need to reward open science practices in terms of open

collaboration and early knowledge and data sharing leading to increased quality, efficiency and trust. The way in which the system is reformed should be appropriate for each type of assessment (research projects, researchers, research units, and research institutions). In particular, the assessment of individual researchers could be based on qualitative judgement for which peer-review is central, eventually supported by responsibly used quantitative indicators, in agreement with the San Francisco Declaration on Research Assessment (DORA).

Some research funding and performing organisations are already taking steps for reforming the way they assess their research and researchers, on which to build, but progress remains slow, limited and fragmented across Europe.

In line with the Council Conclusions, the Commission has started working with stakeholders to discuss their needs and views and to support and facilitate the desired changes. Since March 2021, the Commission has engaged into a consultation of European stakeholders (researchers, RPOs, RFOs, Member States' representatives) to identify the objectives, principles and actions for a reformed research assessment system, including the particular aspects of assessment raised by the need for transformation of higher education institutions, that could be agreed between stakeholders. Establishing a robust common understanding and an ownership of the consultation outcome are crucial since it is the RFOs and RPOs that have the responsibility to define their criteria and processes to assess their researchers and research projects.

The consultation has demonstrated a high level of commitment by stakeholders and strong support to a European initiative. The stakeholders have highlighted the need for researchers to play a central role in the debate and for RPOs to develop ownership of the initiative, as well as the need to ensure alignment between top-down approaches from funders or at national level, and bottom-up activities by RPOs. In particular, they have highlighted that dialogue with national and regional authorities should be sought to reduce legal obstacles and barriers to changes at national and regional level, and to address broader framework conditions like the balance between project-based funding and life-cycle funding which deeply influences the assessment process. Furthermore, stakeholders have asked for a sufficiently flexible framework (but also sufficiently accurate) to be developed to accommodate diversity of countries, disciplines, research cultures, missions of institutions, and career paths. They have also asked for an agreement on the core elements defining excellence, and a good balance between qualitative assessment and quantitative indicators to be found. Draft principles and actions that could be agreed between stakeholders, based on the consultation so far, are annexed to this note.

The Commission is proposing that the common understanding would then be translated into a European agreement, such as a Memorandum of Understanding, signed by individual RFOs, RPOs and national assessment agencies, as well as by their associations, willing to reform the current research assessment system. An agreement would confirm the commitment of the signatories to changes. The agreement should attract a critical mass of stakeholders which would allow them to more safely and efficiently engage in reforms, thereby enabling a system change. Dialogue with national and regional authorities will be key to ensure that policies for research assessment facilitate the reforms undertaken by RFOs, RPOs and national assessment agencies.

Such a 'coalition of the willing' approach would ensure ownership of the initiative by the signatories. The Commission would act as a facilitator, as well as a potential signatory in its role of funding organisation. An implementation plan would be established by the signatories, including milestones and timeframes,

in order to translate the commitments into effective changes. Monitoring and reporting measures would also be agreed among the signatories to ensure that commitments translate into tangible changes.

In addition, some of the agreed principles could be enforced through a potential revision of the European Charter for Researchers and Code of Conduct for the Recruitment of Researchers, which is currently the subject of an analysis and a study commissioned by the Commission.

A European agreement aligning the assessment of research projects, researchers, research units and research institutions, across countries, along common objectives, principles, actions and monitoring arrangements would be beneficial for Europe and globally, as this would prevent contradictions across assessment systems and therefore allow better interoperability of the research systems, easier mobility and a seamless career system for researchers. In addition, the Commission is currently involved in setting up a sub-group on research assessment under the G7 Open Science Working Group (together with UK), to foster global cooperation and alignment on research assessment.

Next steps

In September-October the Commission is organising an additional series of bilateral meetings to sharpen the rationale for reforming the research assessment system, and to further discuss the draft principles, actions and monitoring mechanisms for a European agreement. In addition to the ERAC Plenary Policy Debate, a discussion (on 8 October) with the ERA Forum for Transition is also scheduled.

Based on the inputs received, the Commission will prepare a report summarising the outcome of the consultations and the core elements of a European initiative that stakeholders may agree on. A second assembly of stakeholders will then be organised to discuss the elements of a European agreement, with the potential roll-out of the initiative in 2022, that could be kicked off at the occasion of an French Presidency event on Open Science to be held in Paris on 4-5 February 2022.

Questions for discussion:

1. What measures could national and regional authorities take to support and incentivise a reform of research assessment by research funding and research performing organisations? Would they encourage national/regional funding agencies to become members of the coalition described above?
2. Are there any further actions that the European Commission could/should take to further support a reform of the research assessment system?

Principles for a reformed research assessment system

An agreement between stakeholders might contain the **principles** listed below. All proposed principles are based on earlier consultations and discussions with stakeholders, including during assembly meetings organised on 17 and 18 March 2021 and bilateral meetings with associations of research organisations, academies and other stakeholders organised during the period May-July 2021. All proposed principles build on:

- o the values and principles enshrined in the 2021 Commission's proposal for a Council Recommendation on a "Pact for Research and Innovation in Europe";
- o the principles, values and responsibilities laid down in the Magna Charta Universitatum, revised in 2020;
- o the principles and good research practices laid down in the "European Code of Conduct for Research Integrity" published in 2017 by All European Academies (ALLEA);
- o the recommendations identified 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.

A first set of higher-level principles correspond to overarching conditions, while a second set of principles correspond to assessment criteria and processes.

Principles for overarching conditions

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

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

3. Respect the **autonomy of research performing 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 R&I landscape and to enable the mobility of researchers.

4. Ensure **independence and transparency of the data, infrastructure and criteria** necessary for research assessment; in particular by clear and transparent data collection and indicators, and by allowing those assessed to have access to the data, analyses and criteria used.

Principles for assessment criteria and processes

Quality and impact

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

6. 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 and/or long-term, and that vary according to disciplines and research types (e.g. frontier research vs. applied research).

Diversity, inclusiveness and collaboration

7. 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 and mentoring, leadership roles, and, as appropriate, science communication and service to 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, and workflows, 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. Recognise that researchers should not excel in all types of tasks and provide for a framework that allow for researchers to contribute to the definition of their research goals and aspirations.

8. Use assessment criteria and processes that respect the **variety of scientific disciplines, research maturity levels** (e.g. frontier research vs. applied research), **as well as research career stages** (e.g. early career researchers vs. senior researchers), and that acknowledge interdisciplinary and inter-sectoral approaches when applicable. Research assessment should be conducted commensurate to the specific nature of scientific disciplines, research missions or other scientific endeavours.

9. 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**.

10. Ensure **gender equality, equal opportunities and inclusiveness.** Consider gender balance in research teams at all levels, and the gender dimension in the content of R&I. Take into account diversity in the broader sense (e.g. racial or ethnic origin, social inclusion, people with disabilities) in research teams at all levels, and due consideration of demographic variables such as socio-economic background in the content of R&I.

Actions that signatories of an agreement would commit to

The research performing organisations, research funding organisations and national assessment organisations signing an agreement would commit to the following actions:

1. **Work on aligning research assessment with the above principles**, building on the Pact for R&I in Europe, the DORA recommendations, the Magna Charta Universitatum, the European Code of Conduct for Research Integrity, the Leiden Manifesto, the Hong Kong Principles, and other equivalent declarations. This will require each individual research organisation to reform its assessment criteria and processes within the spirit of the above principles, and it would require establishing task forces dedicated to implementation. Work will in particular consist of:
    a. Developing assessment criteria and processes for research proposals and of researchers' performance that:
        - reward quality, and the (potential) impact of research;
        - valorise the diversity of research activities and outputs;
        - consider the process/conduct of research as well as its outputs;
        - valorise team work, as well as cross-disciplinary collaborations when appropriate;
        - support different researcher profiles and different career paths;
        - check compliance with ethics and integrity rules and practices.
    b. Developing assessment criteria and processes based on qualitative judgement for which peer-review is central, eventually supported by responsibly used quantitative indicators. This includes developing recruitment and assessment processes with more narrative information on achievements and potentials, and their (potential) impacts, such as narrative CVs and prospective research narratives; as well as developing and testing new indicators while moving away from the use of the Journal Impact Factor.
    c. Tailoring assessment criteria and processes to respect the variety of scientific disciplines, of research maturity levels and research career stages.
    d. Developing guidance for those assessed.
    e. Ensuring transparency and wide communication about the specific criteria, methods and data used for assessment.
2. Recognise the value of assessment of research proposals and of researchers' performance and **promote quality in the strategies for assessment, and mechanisms to ensure their continuous improvement**. Ensure comprehensive assessments that can thoroughly address the above mentioned points, **while limiting assessment to the strictly necessary**, avoiding duplication of processes and excessive costs, and promote the reuse of research assessment processes and results whenever possible. Build from lessons learnt to improve strategies and criteria for assessment.
3. **Recognise peer-review** as part of researcher's tasks and as an important service to the scientific community. **Facilitate, incentivise and reward peer-review tasks** carried out by researchers.
4. As a condition for reforming research assessment, **allocate the necessary resources** to:
    a. implement changes in research assessment;
    b. raise awareness of all actors;
    c. educate, train and support researchers (including peer-reviewers) and any other staff;
    d. support the necessary infrastructure.

Pay particular attention to the environment offered to early career researchers. Recognise the particular role of research funding organisations in supporting financially changes to research assessment.

5. **Share information, practices and experience** among research organisations, notably via a dedicated repository, **to facilitate mutual learning** between institutions, to contribute to guidance and common approaches, and to contribute to coherence between the assessment of research proposals, researchers, research units, and research institutions). Also contribute to open infrastructures underpinning research assessment by sharing relevant data.