

# Recommendations of the OSPP on Next-Generation Metrics, adopted on 30 October 2017

*Drafted by the Altmetrics Working Group of the Open Science Policy Platform*

## Key Points

The OSPP fully endorses the EC Expert Group on Altmetrics report's emphasis on the importance of using a mix of quantitative and qualitative metrics in research evaluation, and on the need to tailor the selection of indicators used to assess research to specific goals and situations (as different indicators can provide different insights depending on what is being measured, e.g. impact on policy versus quality or broad outreach etc, and depending on which field is being targeted).

In addition, we suggest some key premises for policies relating to research metrics:

- The topic of this working group and related initiatives should be renamed to '*next-generation metrics*', as '*altmetrics*' can be perceived to have a much narrower and more confusing definition. The discussion of metrics (or indicators) here shouldn't be seen as alternatives to mainstream metrics, but rather as an *important and necessary evolution in the type of metrics used to assess researchers careers and performance*.
- A distinction should be made between two types of indicators used to assess, reward and incentivise open research:

[1] indicators that *measure Open Science behaviours* themselves (such as how often does the researcher publish open access; to what extent do they make their data FAIR; how openly they share other research outputs such as code or research protocols, methodologies or milestones; do they contribute to open peer review, etc.).

[2] indicators that *provide insight into the quality, value and potential impact of the research outputs in a way that incentivises open science behaviour*. The context of this second type of indicators is broader. It should focus on the *development and application of a set of new and innovative indicators, both quantitative and qualitative, that measure quality, value and potential impact* of a researcher, project or organisation's outputs – while retaining and improving existing indicators that do so already.

The reward system should be based on both above mentioned indicators that *incentivise research quality and Open Science behaviour*. It is necessary to move away from those indicators that inhibit transparency and inclusiveness in science, thus dis-incentivising Open Science behaviour (i.e. the use of journal Impact Factors or the journal brand name as a surrogate for assumed output quality).

- There is a need to provide evidence of the advantages that Open Science can bring for researchers, and to demonstrate that it brings benefits to science and to society.
- The focus of the EC Open Science Agenda is on ensuring that science is conducted in an open manner. However, it is not possible to implement such a policy without an associated adjustment in the incentives for researchers, and ensuring a coherent reward system that is implemented across borders and disciplines. It is therefore important that these recommendations are coordinated closely with those of the OSPP Rewards and Skills Working Groups to ensure an aligned and clear set of recommendations across all three areas.

## Priorities

There are seven areas that we feel are of particular priority for action by the EC and the major stakeholders involved in the European research system:

1. The EC, through the OSPP and other relevant stakeholders, should agree on the specific goals and formulate the mission of open science/open research, and decide what desirable outcomes should be incentivized and measured before identifying the indicators that are most suitable for measuring those outcomes.
2. The EC should work collaboratively with other major funding bodies in Europe (and ideally worldwide) to urgently commission a study to propose such guidelines for best practice and tools for research assessment – in particular, concrete and adequate indicators that can be applied to measure and incentivise the goals and desired outcomes as identified in Priority 1 above. Active pilots should then be run (as conducted by the UK Research Excellence Framework 2014) to review their effectiveness in both measuring the quality of researcher, project and institutional outputs, as well as in incentivising open science behaviours. The EC should lead by example through FP9 and the European Research Council (ERC). Equally importantly, the EC should actively encourage and promote the use of similar guidance and indicators by other research funding bodies and research institutions across Europe. This will enable these organisations to provide a real response to their endorsement of the San Francisco Declaration on Research Assessment (DORA) and the Leiden Manifesto.
3. Research institutions and funding bodies need to take concrete actions to develop statements of principles on appropriate institutional uses of indicators and evidence of use in practice, with a view to establishing a culture of assessing what works in research practice and then implementing best practice. The development and implementation of such policies should be openly tracked to encourage others to follow. This should be accompanied by evidence (e.g. from pilot studies) that these new approaches support research and researcher assessment efficiently and effectively while using an appropriate mix of quantitative and qualitative indicators. Supporting advocacy work is also required by research institutions and funding bodies with researchers at all levels (R1-R4) to ensure a recognition of the benefits of an open science approach and of changing the existing assessment, recognition and reward practices. Libraries can play an important role in communicating the statements, evidence and best practices to researchers as part of their services to support research.
4. It is essential that EC research policy making, funding and evaluation is grounded in *open metrics* that enable fair and formal validation. There needs to be a cross-sector discussion around how to ensure that core metrics that can be used to determine desirable behaviours are made available in an equitable and sustainable way and to enable their broad uptake and independent analysis.

The EC should facilitate the infrastructure needed to enable open metrics and encourage closer engagement and collaboration with metrics developers/innovators to ensure that the metrics being developed support important use cases and incentivise the behaviours that are essential to supporting Open Science and scientific progress.

5. The EC should recommend the use of persistent and standard identifiers for researchers, institutions, funders, research outputs and their associated metadata including licenses. [ORCID](#) should be adopted for the European Open Science Cloud (EOSC) and other research infrastructures and scholarly publications platforms as the researcher identifier (ID), and be mandatory for the successful applicants to FP9 and the ERC grants. The EC should also actively promote and evaluate its use across other research funders, research institutions and publishers based in the EU Member States and beyond.

Together with unique object identifiers ([DOIs](#) or other community recognised identifiers) for research outputs, and organisational, grant and license IDs for the relevant associated metadata (when fully developed), this implementation will help to build reliable infrastructures enabling research outputs to be connected to individual researchers and research inputs. In addition, we recommend the EC promote the use of [CRediT \(Contributor Roles Taxonomy\)](#) across scholarly output platforms through its IT and monitoring systems to capture specific individuals' contributions to research as opposed to a singular perspective of 'authorship'. These tools and processes should become an integral part of the EOSC, thus enabling the capture of more detailed information about researcher contributions to outputs.

6. It is crucial that the opportunities of the European Open Science Cloud (EOSC) to build a global framework are maximized. Linked and standardized metadata and vocabularies need to form the basis for this open, interoperable and publicly available data infrastructure. The right identifiers, standards and vocabularies/ontologies need to be used to ensure indicators are contextually robust and can be properly understood. The new EOSC HLEG therefore needs to address a discussion on a broader conception of research outputs and associated metrics to be implemented within the EOSC.
7. The EC should establish a 'European Forum for Next Generation Research Indicators' that can take these recommendations forward. However, its remit should move beyond next-generation metrics to additionally drive progress on the recommendations that arise from the OSPP WGs on Rewards & Incentives and on Education & Skills and possibly the EOSC, to ensure coordination of the highly related activities that will come from these groups.

To be successful, it is crucial that this Forum includes the active engagement of key European and national stakeholders, including research funders, institutional research managers and researchers on assessment panels, as well as non-academic stakeholders such as researchers in industrial settings, end users and civil society representatives. In addition, each stakeholder group needs to identify what concrete actions they can start now to move these recommendations forward, as success will only be achieved by joint coordinated action.

## Summary

The EC must lead and support the mindset shift needed to encourage the use of new research infrastructures for Open Science (e.g. EOSC and the H2020 platform for Open Access publishing) by incentivising and rewarding Open Science approaches, identifying next-generation metrics, and ensuring their uptake in the reward system.

## Authorship Information

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