

# Open Data in Science in Europe

Statement by the European Members of the International Council for Science<sup>1</sup>

The following recommendations are based on the workshop “Open Data in Science: Challenges and Opportunities for Europe” that took place under the patronage of the European Members of the International Council for Science (ICSU) and in partnership with the All European Academies (ALLEA) in Brussels on 31 January 2018. The event benefited from presentations by representatives of science organisations, public research funders, the publishing and the policy sector, and input from the 80 meeting participants from across Europe and representing science academies, research performers, funding bodies, international science organisations and government agencies.

## General

Publicly funded scientists make their research data available in reusable format in order to enhance the quality and effectiveness of science and as a contribution to help address societal and environmental challenges. The following elements are necessary for a conducive environment.

## FAIR Principles

The FAIR Principles (Findable, Accessible, Interoperable, Reusable) serve as aspirational objectives for scientists to make data available in such a way that they can be used for other research, and to allow the verification of research results to enhance their quality, robustness and reliability. Science academies help operationalise and implement the FAIR Principles.

## Data repositories

Trustworthy data repositories ensure long-term preservation of Open Data. They are reliable, minimally support FAIR metadata, and their data stewardship adequately caters for privacy, security and intellectual property issues, especially in relation to personal data. For that purpose, and to help increase the number of certified trustworthy data repositories, science academies recommend their use and support the work of the World Data System (WDS) of the International Council for Science.

## Data skills

Research institutions and other relevant bodies provide scientists who they employ or from their network with continued training and skills development in data stewardship to enable them to make their research data available. Professional data stewards are also trained and supported.

## Incentives and reward systems

Research institutions, funding agencies and other relevant bodies enhance incentives and reward systems that give recognition to and foster Open Data activities of scientists. These organisations and science academies develop scientific output assessment systems (altmetrics / next generation metrics) that adequately take into account Open Data activities and contributions of scientists.

## Research Data Management

Scientists include Data Management Plans (DMPs) as part and parcel of applications for public research funding. Funding agencies include DMPs in the evaluation of submissions, at the same level as the science part of the application, and provide scientists with sufficient guidelines for Research Data Management (RDM) and long-term data stewardship.

## Research culture

Science academies make appropriate contributions to help bring about a research culture in their communities in which data and tool sharing are the norm and promoted as part of scientific practice, while taking cognisance of different needs and notions according to disciplines.

## Contact

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<sup>1</sup> Members: **Albania**: Academy of Sciences of Albania; **Armenia**: National Academy of Sciences of Armenia; **Austria**: Austrian Academy of Sciences; Azerbaijan: **Azerbaijan** National Academy of Sciences; **Belarus**: National Academy of Sciences of Belarus; **Belgium**: Royal Academies for Science and the Arts of Belgium; **Bosnia-Herzegovina**: Academy of Sciences and Arts of Bosnia and Herzegovina & Academy of Sciences and Arts of the Republic of Srpska; **Bulgaria**: Bulgarian Academy of Sciences; **Czech Republic**: Czech Academy of Sciences; **Denmark**: Royal Danish Academy of Sciences and Letters; **Estonia**: Estonian Academy of Sciences; **Finland**: Council of Finnish Academies; **France**: Académie des sciences; **Georgia**: Georgian National Academy of Sciences; **Germany**: German Research Foundation DFG; **Greece**: Academy of Athens; **Hungary**: Hungarian Academy of Sciences; **Ireland**: Royal Irish Academy; **Italy**: National Research Council CNR; **Latvia**: Latvian Academy of Sciences; **Lithuania**: Lithuanian Academy of Sciences; **Luxemburg**: National Research Fund FNR; **Macedonia**: Macedonian Academy of Sciences and Arts; **Moldova**: Academy of Sciences of Moldova; **Monaco**: Scientific Centre of Monaco; **Montenegro**: Montenegrin Academy of Sciences and Arts; **Netherlands**: Royal Netherlands Academy of Arts and Sciences; **Norway**: Norwegian Academy of Science and Letters; **Poland**: Polish Academy of Sciences; **Portugal**: Academy of Sciences of Lisbon; **Romania**: Romanian Academy; **Russia**: Russian Academy of Sciences; **Serbia**: Serbian Academy of Sciences and Arts; **Slovak Republic**: Slovak Academy of Sciences; **Slovenia**: Slovenian Academy of Sciences and Arts; **Spain**: State Secretariat for Research, Development and Innovation; **Sweden**: Royal Swedish Academy of Sciences; **Switzerland**: Swiss Academy of Sciences; **Turkey**: Scientific and Technological Research Council of Turkey; **Ukraine**: National Academy of Sciences of Ukraine; **United Kingdom**: Royal Society; **Vatican**: Pontifical Academy of Sciences.