



## G6 statement on Open Science

Brussels, December 2021

### EXCELLENT RESEARCH NEEDS OPEN SCIENCE

The growing momentum for Open Science is in line with our mission to foster research excellence and to accelerate the advancement of science. Open Science principles and approaches were developed from within the scientific community itself, out of genuine self-interest and to further develop key scientific principles - the transparency of research practises, reproducibility of results, and the sharing of knowledge. By opening up publications, data, processes, codes, methods and protocols, it also offers new ways for scientific practices. G6, as Research Performing Organizations (RPO), are committed to excellence in research and Open Science is definitely a good approach to foster excellent research.

G6 institutions actively support the transition to Open Science. This transition requires a concerted effort to reform cultural and technological practices. G6 institutions intend to contribute to this transition by jointly addressing the following priorities:

### OPEN ACCESS PUBLICATIONS

Open Access to scientific publications is a cornerstone in the broader field of Open Science. We are committed to accelerating the transition to Open Access as the default mode of academic publishing. Open Access to publications improves the pace, efficiency and efficacy of research, and strengthens the authors' visibility, and thus the potential impact of their work.

Reaching 100% of Open Access is a main goal for all of our institutions but researchers cannot freely share and build on the results they publish if publishers hold copyrights of their articles and monographs. Therefore, we are committed to support our researchers to retain sufficient rights to publish their scholarly articles and monographs openly and we encourage them to publish their results (i.e. final version and/or manuscript) under an open license, preferably the Creative Commons Attribution License CC BY.

### FAIR DATA

We share a common commitment to the principle of making research data "as open as possible and as closed as necessary". A balanced and flexible approach to data sharing is essential for an efficient science, research and innovation ecosystem, fostering collaboration, knowledge transfer and preserving scientific freedom.

Our institutions are committed to the sharing of data as guided by the FAIR principles (Findable, Accessible, Interoperable, Reusable). Applying FAIR criteria will guarantee discovery, access and reuse of research outputs by humans and machines. Because the cost of not having FAIR data for research is high, strict adherence to FAIR principles to ensure sustainability of research data and software as well as data preservation are major challenges.

## **RESEARCH SOFTWARE**

The role of research software in an Open Science environment should be particularly emphasized in this context as a key enabler for the production, analysis and visualization of research data in the scientific endeavour. High quality research software is important for excellence in research. It has become a central component of scientific work as rarely any research is conducted nowadays that does not rely on software. Facilities, resources, consulting and services related to research software are ubiquitously used by the scientific community. So, G6 members agree on the principle that research software must meet the same principles and rigorous requirements that researchers expect of their publications, data, samples, devices and infrastructures.

## **RESEARCH ASSESSMENT**

Sharing and cooperating are central elements of digital research culture. Openness thus becomes a paradigm of the transformation process of scientific work. Scientific requirements for research findings and quality are manifested in the assessment system. The further development of the respective procedures and criteria is therefore a genuine responsibility of the research organisations. Thus G6 will continue to participate in this process. The elaboration of procedures should be aligned with and support the development of research practices and research culture. Criteria, methods and indicators should be used in a transparent way in order to improve the overall accountability and credibility of the assessment procedures. Future research assessment should incentivize the provision of Open Access, FAIR data, software, tools, and active contributions to Open Science, and in this way enable the appreciation of the work involved.

## **SKILLS AND TRAINING**

Open Science is an approach to research based on cooperation and early sharing of research outputs. Its adoption requires new practices and skills in the management of data and along the scientific workflow. To meet this target, researchers and support staff must gain the knowledge and skills required to embrace these new practices, and new roles must be introduced in the RPOs staff, such as data stewards, data engineers, and data infrastructure managers. Efforts are emerging at the national, disciplinary and institutional levels to provide qualified education and training for all these actors to gain the necessary knowledge and skills. G6 institutions intend to facilitate this skill building process by sharing best practices and training resources, aligning curricula and learning paths, and empowering a workforce of European experts to support effectively and train the different stakeholders involved.

## **INFORMATION INFRASTRUCTURE AND SERVICES**

Excellent science also needs excellent information infrastructure capable of evolving in line with the changes Open Science evokes in scientific best practices and requirements. G6 works to facilitate Open Science practices for challenges that arise in several areas. This includes information infrastructures and services serving needs from data preservation to data sharing, supporting quality control, ensuring interoperability of tools and services as well as controlled and secure reuse of resources. Key components such as identification systems for people as well as research objects need to be introduced and made interoperable across Europe, if not globally. The G6 is committed to maintain appropriate infrastructures that are able to keep up with current and future requirements resulting from the transition to Open Science.

## **CONCLUSION**

The G6 will continue to actively contribute to the further development of Open Science.

*The G6 network unites six large multidisciplinary Research Performing Organisations located in Europe, the Consiglio Nazionale delle Ricerche, the Centre National de la Recherche Scientifique, the Consejo Superior de Investigaciones Científicas, the Helmholtz-Gemeinschaft Deutscher Forschungszentren, the Leibniz-Gemeinschaft and the Max-Planck-Gesellschaft.*