

Annex 1: G7 Open Science Working Group (OSWG)

Mandate and purpose

The G7 Open Science Working Group (OSWG) was established at the 2016 G7 meeting and its mandate was extended in the 2021 “G7 Research Compact”, committing the G7 nations to work together on open science, including to promote the efficient processing and sharing of research data across the G7 and beyond; and address barriers that hinder scientific cooperation and slow the ability to respond to crises; explore incentives, including enhancements to research assessment that foster recognition and reward collaboration across disciplines; and investigate how open science practices help achieve robust and impactful research outcomes.

Outputs

To deliver on this mandate, the OSWG through its sub-working groups carried out important activities to support G7 cooperation in the area of open science.

The **subgroup on research-on-research** organised two workshops with experts that helped inform the development of papers on ‘how we can improve reproducibility in science’, ‘how we can increase data sharing and embed it in research culture’ and ‘how the research evaluation system can accelerate the open science journey’. Based on these activities, the recommendations of this subgroup are: i) deepen research-on-research on open science at an international level, and increase coordination and knowledge-sharing; ii) use research-on-research to inspire frameworks for monitoring open science; iii) develop a ‘state of knowledge’ on research-on-research, to inform policy and decision-making, coordinating existing research and stimulating new research. These actions could be coordinated through an international research-on-research initiative.

The **subgroup on research assessment and incentives** organised five meetings, two surveys of its members, and one workshop with independent experts, developing reports on policies and practices for incentives, on open-science related indicators for research assessment, and on ways to engage with relevant stakeholder communities regarding research assessment. The subgroup has identified a number of recommendations, in particular: i) change the research assessment system to encourage open science, through valuing more diversified research outputs, activities, practices and career paths; ii) promote engagement of stakeholders across the whole research system to accelerate changes; iii) promote global collaboration and mutual learning, to foster coherence and alignment; iv) raise awareness and exercise leadership to promote open science practices; v) develop open and transparent indicators of science to be used in research assessment; vi) provide infrastructures and support necessary to practice open

science, and to support research assessment; vii) provide education and training that enable researchers to practice open science and support the development and responsible use of indicators.

The **subgroup on interoperability and sustainability of infrastructures** held five meetings and delivered a case study focused on open science infrastructures critical to the COVID-19 pandemic. The case study's main findings are: i) the pandemic illustrated the importance of world-wide sharing of data and other research outputs to accelerate research and decision-making, and the prior infrastructure investments and expertise that enabled this; ii) successful responses to common challenges and future global crises will require similar accessing, sharing, and comparing data; and iii) open science infrastructures therefore need to be embedded in standard workflows in advance in order to be effectively leveraged during crisis situations. The subgroup's overall recommendations are: i) promote international cooperation on open science infrastructures, leveraging successful existing cooperative efforts and exploring new opportunities within G7 and beyond; ii) define and adopt common principles and practices for open science infrastructures to improve interoperability and promote data accessibility while respecting security and confidentiality needs.

Next Steps

G7 cooperation on open science is set to continue, in particular to i) promote interoperability, transparency, cooperation and trust in open science infrastructures; ii) promote open and public access to scientific publications, sharing of research data and other research outputs; iii) explore research assessment approaches that promote qualitative judgement with peer-review supported by the responsible use of indicators; iv) promote research management and data governance practices in line with the FAIR (Findable, Accessible, Interoperable, Reusable) and CARE (Collective Benefit, Authority to Control, Responsibility and Ethics) principles; v) mobilise research-on-research to promote effective open science policy making; vi) promote inclusivity and equity in practicing open science, among countries and communities; and vii) encourage a framework for monitoring the progress and obstacles of open science.