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3rd Open Science Conference

Accelerating the Sustainable Development Goals, Democratizing the Record of Science

The record of science is not yet as open to researchers and the public as it ought to be. In the era of new digital and data infrastructures, scientific and scholarly publishing remains aligned with the Gutenbergian model of the scholarly communications cycle rather than with the new, liquid frontier of digital sciences. This occurs despite the evident advantages of opening the record of science and making it accessible to all, within and across nations; the swift discovery and production of an effective vaccine against COVID-19 and its widespread dissemination, at least among the nations that could afford it, being an excellent example of what research method openness can achieve. The momentum for open science has been unprecedented.

On 27 October 2020, in the height of a pandemic wave, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO), the European Organization for Nuclear Research (CERN) and the Office of the United Nations High Commissioner for Human Rights launched a Joint Appeal for Open Science. In February 2021, the International Science Council released its opinion on the future of scientific publishing highlighting the need to open the record of science and recommending eight fundamental principles to reform scientific publishing endorsed by the Council's members. On 23 November 2021, following an inclusive, transparent and multistakeholder consultative process, UNESCO's Recommendation on Open Science was adopted by 193 Member States during the 41st session of the Organization's General Conference. On 25 August 2022, in the United States, the world's largest research-funder, the White House Office of Science and Technology Policy (OSTP) published a policy guidance to US federal agencies with research and development expenditures on updating their public access policies to ensure free, immediate and equitable access to federally funded research, including data, by December 2025. Along with the pioneering work of the European Open Science Cloud initiated back in 2015, the evolving African Open Science Platform, the equity paradigm of open scholarship in Latin America and the related developments in Japan and China, the global agenda is set on the necessity to democratize the record of science.

From 8 to 10 February 2023, the 3rd United Nations Open Science Conference, "Accelerating the Sustainable Development Goals, Democratizing the Record of Science", will bring together policy makers, IGO representatives, researchers, scholars, librarians, publishers and civil society. They will convene at the UN Headquarters in New York and online to illustrate open science in action and to engage into a dialogue about the opportunities and challenges of practicing open science. In the lead-up to the International Day of Women and Girls in Science on 11 February 2023, this three-day conference is organized by the Dag Hammarskjöld Library of the United Nations Department of Global Communications in collaboration with the Department of Economic and Social Affairs, Division of Sustainable Development Goals, and UNESCO's Division of Science Policy and Capacity-Building.

Building on the outcomes of our previous United Nations Open Science Conference, this 3rd global endeavor will explore initiatives, themes and perspectives into the open scientific method and the digital scholarly communications cycle. It will evolve around three streams which will cut across all panels and keynotes.

Equity in open scholarship: Open science should be achieved and practiced in ways that ensure equity of access to scientific knowledge production and output, where both writers and readers have access to the scientific record. The global science community and its supporters must actively seek out and execute strategies for achieving inclusivity bridging the gaps between high-, middle- and low-income nations. Values like power, greed, exploitation, profit, and expansion result in climate change, racial/class/global inequalities and systemic oppression of historically marginalized groups. The recent inequities in global health outcomes and vaccine inequality are unfortunate references. Institutions can work towards equity by adopting values based in the humanities, under the lens of intersectionality, examining the ways in which some solutions tend to repeat systemic oppression, and center on empowering vulnerable populations during the solution creation process, not after. Open science practices are better suited to contribute to equity and inclusivity when they enable historically marginalized people to learn about and research topics important to them and their communities, have their research recognized and rewarded – not through proxies –, produce multilingual research, achieve gender parity mainstreaming, consider the social and historical context and the multidimensionality of practitioners, and freely translate research output into impact for their own communities. We need to be intentional in securing a system-wide shift to bibliodiversity, inclusiveness, and multilingualism, better in communicating science and adept at building partnerships and pursuing a science that is of social relevance, for all.

Reforming scientific publishing: The ecosystem of the increasingly dysfunctional scientific publishing is market-based and serves the purpose of bringing profits to certain actors, moving away from the scrutiny that is vital to maintain scientific rigor. The current set of rules in this market (journals, impact factors, H-index etc.) is designed to create and maintain hierarchies, force competition, cultivate a distorted nature of research excellence – propagated by an outdated research assessment and awards system –, create enhanced gender asymmetries and deprioritize unprofitable research. Some significant corporate publishers are morphing into dominant technological firms with a heightened ability to commercialize information access and user data. This approach risks losing the public's trust in science, restricts access to the scientific record undercutting global inclusion, and falls short of the opportunities presented by the digital revolution. It seems that misinformation, disinformation and malinformation on scientific advances is freely available online to all – while credible and authoritative scientific information and data lie behind paywalls, in spite of the open science momentum.

Strengthening the science-policy-society interface: Science is a crucial tool for advancing progress on the 2030 Agenda and achieving the 17 Sustainable Development Goals (SDGs). This is recognized in the 2030 Agenda which calls for the establishment of a technology facilitation mechanism to advance science, technology, and innovation for the SDGs including through

knowledge-sharing in an open access, online platform. Approaching the mid-point on the path toward implementing the 2030 Agenda, the world is beset by overlapping and reinforcing crises. The science of complexities is the science of the SDGs. Both at the SDG Summit in September 2023 and at the 3rd United Nations Open Science Conference, it is increasingly important to codify the best of what we have learned from global crises such as the pandemic into a policy framework to support sharing of scientific research, data, and knowledge for the SDGs. Likewise, the emerging role of free and open-source technologies must be considered as they remake science research across the world. As big data, open data, and open science progress to increase access to complex and large dataset platforms for innovation, discovery and decision-making, the cumulate advantage of data aggregation is still unaddressed; operationalizing FAIR and CARE principles across data lifecycles can serve interests of people and communities.

Democratically designed and governed digital platforms for knowledge discovery, capture and preservation, treating scientific outputs, including data, as a public good, are urgently pursued, both from the bottom up (practice/design/use) and from the top down (conceptualization/design/policy/regulation). A global Science Commons for the SDGs "connecting" infrastructures and processes, identifying opportunities for global collaboration, bolstering multilateral cooperation through mainstreaming and applying open science practices in the scientific method, and incorporating creative commons modalities can accelerate the democratization of the record of science and is intrinsically linked with the rapid advancement of all SDGs. The SDGs can provide a multi-purpose framework that guides open science toward serving the public good. In his report Our Common Agenda, the UN Secretary-General unfolds his vision for the future of global cooperation, reinvigorating inclusive, networked, and effective multilateralism: "We need to improve the protection of the global commons and the provision of a broader set of global public goods, those issues that benefit humanity as a whole and that cannot be managed by any one State or actor alone."

Attend the 3rd United Nations Open Science Conference from 8 to 10 February 2023 in person or online – to participate in lively discussions about the present and future of open science practices for the SDGs and to reaffirm that scientific progress and its applications are for the benefit of all.