UNESCO Recommendation on Open Science

United Nations
Educational, Scientific
and Cultural Organization

Implementation of the UNESCO Recommendation on Open Science

First meeting of the
Working Group on Open Science Policies and Policy Instruments

23 May 2022, 13:00-15:00 CEST (Paris time), Online meeting

Background and Objectives

The UNESCO Recommendation on Open Science was adopted in November 2021 at the 41st session of the UNESCO General Conference. This first international framework on open science was developed through a regionally balanced, multistakeholder, inclusive and transparent consultation process with the guidance of an International Advisory Committee.

To support the implementation of the Recommendation, UNESCO in collaboration with its Global Open Science Partnership and with inputs from a broader open science community, launched five Working Groups focusing on high impact areas for open science, namely: capacity building; policies; financing and incentives; infrastructures; and monitoring.

This online meeting was the second session of these Working Groups, with the aim of discussing existing initiatives, opportunities and gaps for Open Science policies and policy instruments. It was held on 23 May 2022 on the Zoom platform.

To support the transition to open science practices to effectively implement the Recommendation on Open Science, the deliverables of the Working Group on Open Science Policies and Policy Instruments will include the development of a global repository of open science policy instruments and development of an Open Science Policy Guide.

Recognizing the need for funding and appropriate incentives as critical for the operationalization of Open Science worldwide, UNESCO invited experts on the topic and the broad UNESCO Open Science community to discuss the trends and challenges in governing Open Science; to consider regional perspectives on policies and policy instruments; and to exchange on gaps and opportunities.

Report

The online meeting brought together over 75 participants from over 45 countries. Seven experts were invited to speak about key regional and institutional perspectives, namely:

- Open science policies in Africa: **Omo Oaiya,** LIBSENSE (Library Support for Embedded NREN Services and E-infrastructure)
- Open science policies in Europe: **Natalia Manola,** OpenAIRE
- Open science policies in Latin America: **Laura Rovelli**, Consejo Latinoamericano de Ciencias Sociales (CLACSO)
- Open science polices in the Arab region: **Batool Almarzouq**, Open Science Community Saudi Arabia
- Open Science policy at CERN: **Kamran Naim**, Head of Open Science | Scientific Information Services, CERN
- Open Science policy at EMBL: **Victoria Yan,** Open Science Research Information Officer, European Molecular Biology Laboratory - OSIM Office
- Call for papers on open science policies: **Adriana Bankston**, Chief Executive Officer, Journal of Science Policy & Governance (JSPG)

All the regions were represented with attendees from universities and research institutes, from early career researchers to research directors; research funders; National Academies of Science; associations of universities; librarians and library associations; citizen science and indigenous knowledge experts; OA publishers and publisher associations; Permanent Delegations to UNESCO and National Commissions for UNESCO; UNESCO Category 2 centers and UNESCO Chairs; and other regional and international Institutions.

The presentations of the experts and the subsequent discussion with the participants focused on the following:

- Initiatives for developing and tracking open science policies by region;
- The need for local contextualization in developing and implementing policies and policy instruments, building on useful examples and model policies;
- The need for consideration of funding and incentives, as part of scientific culture and practice, when supporting the transition to open science through policy; and
- The need for connection between the multiple ongoing initiatives by different actors.

The key messages of the meeting can be summarized as follows:

- The main objectives of the open science working group on policies and policy instruments are to guide the development of a global repository of open science policy instruments and develop an Open Science Policy Guide;
- Awareness of the benefits, characteristics and needs for open science are still needed, laying the groundwork for policy development;
- Policies and policy instruments are developed and implemented at multiple levels and scales, from national governments to institutions and thematic organizations;

- There is less attention to the policy and infrastructures needed to make citizen science happen and to ensure that scientists and scientific institutions are prepared and willing to participate in open dialogue and societal engagement;
- One of the main policy needs is to connect open science with incentives (such as recognition and rewards) and the larger process of research assessment, by contrast to enforcement alone;
- Open science does not come for free and is people-intensive, requiring change in culture that itself requires a) stable and continuous funding (and associated political support) and b) initiatives that are related to culture change;
- One of the main challenges for a policy directory is to define a *taxonomy* of policies and their components as well as the *indicators* to use to monitor open science policy and implementation;
- UNESCO's role in open science policies and policy instruments includes:
    - developing guidance, in collaboration with this working group, regarding the core principles and approaches for open science policies and policy instruments, which can then be adapted and contextualized by local actors,
    - hosting a global repository and related monitoring framework, and
    - global framework for Open Science initiatives.

This report provides a detailed overview of the views, comments and recommendations discussed in the meeting.

Opening

In his opening remarks, Mr Ezra Clark, Chief of Section, Science, Technology and Innovation Policy, UNESCO, welcomed the participants and provided a brief overview of the Recommendation on Open Science, its key objectives and areas of action. The key challenges and high-impact areas, to be addressed through the efforts of the five Working Groups, were presented as (1) change in the conventional scientific culture; (2) human and institutional capacity; (3) adequate infrastructures, including reliable Internet connectivity; (4) alignment of incentives and revision of criteria for evaluation of scientific excellence and scientific careers; and (5) addressing the unintended negative consequences of open science practices.

UNESCO, in collaboration through the Global Open Science Partnership, the Steering Committee for Open Science and the five Working Groups, will be:

- Developing a series of supporting tools - technical briefs, fact sheets and guidelines;
- Collecting/mapping existing open science policies and strategies;
- Collecting and sharing best practices;
- Analyzing open science financing mechanisms and incentives;
- Promoting open science infrastructures;
- Building capacity; and
- Developing an open science monitoring framework.

Working Group Objectives

Ms Ana Peršić, Programme Specialist, Science Technology and Innovation Policy, UNESCO, presented the provisions from the Recommendation relevant to policies and policy instruments, which guide Member States to develop effective policies and legal frameworks at the institutional and national level, as applicable, with attention to equality and inclusion.

This is to be undertaken through a transparent participatory, multi-stakeholder process that includes dialogue with the scientific community, especially early-career researchers, and other open science actors.

Ms Peršić presented the results of a rapid desktop survey assessing which countries have a national policy on open access, open data, and/or open science defined more broadly.

These preliminary results show a growing number of national policies relating to open science and a shift from policies specific to data or access to publications towards policies that address multiple aspects of open science. Policies are much more prevalent in Europe and North America; the practice of open science is outpacing policy development in most regions. These findings will be verified through formal national reporting.

A handful of observatories and repositories exist although most are limited in geographic or topical scope:

- EOSC Observatory https://eoscobservatory.eosc-portal.eu/home
- Open Science Observatory https://osobservatory.openaire.eu/home
- OECD STIP compass https://stip.oecd.org/stip/
- Global Open Access Portal (UNESCO, Redalyc, Indian Statistical Institute and AmeliCA) https://goap.info/
- UNESCO GO-SPIN https://gospin.unesco.org/frontend/home/index.php has been revised to contain questions pertaining to open science policies. The next round of surveys should provide insight and form the start of long-term global monitoring.

Regarding institutional policies, the Sherpa-Romeo Registry of Open Access Repositories Mandatory Archiving Policies (ROARMAP) indexes mandates pertaining to open access and open data. Over 1,100 mandates are now registered. To date:

- 78% of OA mandates and policies were put in place by research organizations (875 mandates), followed by science funders (84)
- Over 73% of the mandates developed in Western Europe and North America

Regional Perspectives on Open Science Policies and Policy Instruments

The invited experts spoke briefly about existing initiatives and regional perspectives in open science policies, frameworks and policy instruments. The presentation slides and meeting recording are available online.

Mr Omo Oaiva, LIBSENSE, presented an overview of open science policies in Africa existing or in preparation, as well as ongoing activities. Ethiopia's National OA policy, adopted by the Ministry of Science and Higher Education of Ethiopia (MOSHE) in 2019, reaches beyond open access to encourage other best practices in open science. The policy is supported by the National Academic Digital Repository of Ethiopia (NADRE) to aggregate research outputs. South Africa has a first draft of an open science policy, discussed in a stakeholder consultation meeting in February 2022, which mandates open access for publicly funded research processes and outputs, including data acquired or generated by public funds. The policy proposes the establishment of a "national

forum" to promote best practice in open science as well as incentives for researchers to publish in open-access journals. Various countries across Africa are at different stages in the development of National Open Science Roadmaps: Côte d'Ivoire, Ethiopia, Ghana, Lesotho, Mozambique, Nigeria, Somalia, Tanzania and Uganda. Uganda is compiling an inventory of national Open Science infrastructure needs. LIBSENSE has been holding Regional Policy Development Workshops in collaboration with regional research networks and university associations to implement the UNESCO Recommendation at campus level. A recent meeting in Abidjan was attended by research and innovation stakeholders from 11 countries in the region. A compendium of OA/OS policy case studies produced for these workshops includes a recommended checklist for universities implementing the UNESCO Recommendation: https://zenodo.org/record/6467301#.YotaHpPMK3I

Ms. Natalia Manola, OpenAIRE gave an overview of key European policy initiatives for open science. Under the Horizon Europe scheme, all research was required to be published under open access. The European Open Science Cloud (EOSC) is building infrastructure for open and FAIR[1] research, with national initiatives following in alignment. The European Research Era has been renewed with 20 policy actions, four of which directly pertain to open science: enable open science including through the EOSC; reform the assessment system for research (noting the development of a coalition for research assessment reform), researchers and institutions; bring science closer to citizens; and establish an ERA monitoring system. The European Data Strategy addresses data openness and sovereignty by Europe. The policy landscape is diverse but converging, with different approaches and maturity levels. National strategies for open science are in place for many countries, being developed in both top-down and bottom-up processes. One challenge, as identified with open access mandates, may be a lack of follow-up after policies are developed. Supporting tools and instruments are valuable; existing examples include:

- Mutual learning environments: such as the OpenAIRE national open access desks, a bottom-up network supported by the OpenAIRE Working Group on open science policy monitoring; the Council for National Open Science Coordination; and the new coalistion for research assessment;
- Model policies and toolkits: https://www.openaire.eu/toolkit-for-policy-makers-on-open-science-and-open-access
- The EOSC Observatory, a policy intelligence tool developed by the EOSC Future project for monitoring policies, investments, resources, and infrastructures related to the European Open Science Cloud (EOSC). At present, indicators include the number of open access publications, open access datasets, and repositories, among others, with the aim of monitoring policies, practices and impact. Updates will be conducted using a coordinated survey tool every six months.

Mr Kamran Naim described the development of open science policy at CERN. CERN's Founding Convention (1953) contained a prescient statement on opening access to scientific research: "…and the results of its experimental and theoretical work shall be published or otherwise made generally available". Today, open science at CERN is seen as an expression of collective moral responsibility. For CERN, open science incorporates hardware, source code, data, tools, access (to publications and research outputs), infrastructure and policies. Since the 2014 CERN Open Access Policy, all CERN articles have been published under open access, supported by a central fund as needed.

[1] FAIR data principles are intended to improve the **F**indability, **A**ccessibility, **I**nteroperability, and **R**e-use of digital assets. See: https://www.go-fair.org/fair-principles/

The European Strategy for Particle Physics (2020) indicated that the particle physics community should work with the relevant authorities to help shape the emerging consensus on open science and should implement an Open Science Policy for the field. Funding agencies supporting experimental collaborations have specific open data requirements, and CERN plans to establish a central support office for compliance, building on its existing LHC Open Data Policy (2020). To fully engage with policy development in this community, CERN leaders wanted to begin with their own open science policy. The CERN Open Science Strategy Working Group was established in summer 2021 with two principal objectives: to create a framework for a regular and proactive platform for all active stakeholders in open science at CERN; and to develop an organizational Open Science Policy for CERN. The Working Group consisting of representatives from across departments and experiments; CERN has many diverse and distinct research teams, therefore the process needed to begin with elevating internal awareness. Naim noted that they began by surveying existing policies/policy toolkits and used the OpenAIRE Model Policy on Open Science for Research Performing Organizations as a starting point. The policy now uses the definition of open science from the UNESCO Recommendation on Open Science and contains sections specifying the components to be addressed by CERN. The policy will be adopted in 2022 and is accompanied by an implementation plan, including regular meetings of the CERN Open Science forum.

Ms. Laura Rovelli described the state of open science policy in the Latin American and Caribbean (LAC) region, where the open science movement dates back 30 years. The LAC region now has the highest percentage of open access adoption in scholarly journals, with no APCs and no outsourcing to commercial publishers, with a strong focus on community owned and governed open access supporting bibliodiversity and multilingualism. In 2018, the region agreed in the Panama Declaration on Open Science (2018) “to move towards collaborative models of knowledge creation, management, communication, preservation and recognised that open science required going beyond open access, by repositioning society's leadership role to produce and benefit from science, technology and innovation.” However, there is a gap between this open tradition and the criteria and indicators of national evaluation systems, which remain based on the widespread use of impact indicators constructed by commercial databases that exclude a large part of the region's knowledge production. Ramifications include underfunding of community-owned infrastructures because scarce funds are directed towards article processing charges. Some countries have established legislation to regulate open access and open data exist but with low levels of implementation, low coordination and regulation of diverse institutions and low financial incentives. At present with the boost of UNESCO's recommendations on OS, there are current Implementation process and compliance with the law. The most common tendency for open science policy instruments in the LAC region is to focus on collaborative infrastructure, followed by government; orientation, regulation and incentives; with only 9% of policies and policy instruments involving direct financial support. The main policy challenges include the recognition of open science in **research assessment**; the need for interoperable and federative **open science infrastructures** to nourish research assessment systems with diverse knowledge production and the initiatives already active in the region; **policy designs in situated contexts and the requisite diversity** of instruments to strengthen access, openness, participation and collaboration; and **financial support** for the openness of publications and research data and for the necessary infrastructure and training of skilled human resources. The Latin American Forum for Research Assessment (FOLEC) and CLACSO have developed a set of proposals to transform research assessment in the region and are conducting a mapping of open science policies in the LAC region, with partners.

Ms. Batool Almarzouq described the grassroots Open Science Community Saudi Arabia (OSCSA) and the early status of open science in Saudi Arabia and to an extent other Arab States.

The Open Science Community started in the Netherlands, and OSCSA is at present the only such community in the Arab-speaking region. Contextualization is essential. Although policy development on open science is just emerging, there are signs of interest. Saudi Arabia's Vision 2030 focuses on principles aligned with open science, and Saudi Arabia approved new rules in 2021 regulating free and open-source government software and created a digital platform for depositing government software. The Open Government Data and Open Data Policy assists in allowing citizens to benefit from government data, potentially laying the groundwork for a future policy addressing research data. OSCSA grew from an open mentorship programme and works with other open science communities, directly benefiting from open tools and examples for growing the open science movement.

Ms. Victoria Yan introduced the open science mission of the European Molecular Biology Laboratory (EMBL). EMBL is an intergovernmental research institute in life sciences with 27 Member states, six sites in five countries in Europe and around 1,800 researchers. EMBL embraces open science to maximise the openness of outputs of EMBL's research, services and technology development; support open research by the scientific community at large; and make the assessment and reporting of science outcomes more accurate and transparent. The EMBL Open Science Policy 2022 addresses all publications which are made available in open access and as preprints, FAIR data supported by data management plans, open source software, incorporation of open principles and reform in research assessment, and enhanced attribution and credit for openly shared materials (relying on tools such as Open Researcher and Contributor IDs [ORCID]). The creation of this policy began in 2020 building upon existing institutional policies pertaining to open access, publications and research practices. An inclusive and consultative process, including the engagement of all staff to build an understanding of their existing practices and challenges, was needed to develop the policy. The EMBL Office for Scientific Information Management (OSIM) now supports open science best practices, aligned with the EMBL Open Science Policy, and is developing a framework for open science progress monitoring. EMBL is planning to document the creation of its policy for the use of others.

Open Discussion on Open Science Policies and Policy Instruments: opportunities and challenges for the implementation of the UNESCO Recommendation

Open discussion with the participants was moderated by Mr Ezra Clark, Chief of Section, Science Technology and Innovation Policy, UNESCO, who opened the floor for the participants to share their views regarding Open Science and capacity building. Some key highlights mentioned by the participants include the following:

Participants mentioned uneven attention across the pillars of open science as defined in the Recommendation (1-Open scientific knowledge, 2-Open science infrastructures, 3-Open engagement of societal actors and 4-Open dialogue with other knowledge systems). Many of the policies discussed to date focus on the pillar of Open scientific knowledge or its pieces, such as open access to publications, open research data, open hardware and so on.

Some participants felt that if engagement with all societal actors is embedded in all work on open science, it would not require a specific policy. Policies that enable open access to scientific outputs can enable overall participation. However, policies focused only on opening scientific outputs may not support actions towards fostering and facilitating engagement. For instance, specific policies and policy instruments could reward scientists for engaging or develop specific funding streams for the engagement, support infrastructure and best practices for crowdsourcing, mandate training and capacity building for participatory science, and so on. All these require policy support.

There is less attention to the policy and infrastructures needed to make citizen science happen and to ensure that scientists and scientific institutions are prepared and willing to participate in open dialogue and societal engagement. Participants noted that current policies centre academics in knowledge production, but this does not need to be the case.

The concepts of citizen science, societal engagement and open dialogue are interpreted in many different ways. Although it may be difficult to create and enforce a policy governing the initiation and coordination of scientific projects by citizens, community and citizen science can be supported through policy, especially by encouraging and supporting the participation of academic and scientific institutions in those initiatives. A range of actors are relevant, such as academic libraries which share citizen science activities with university departments.

These components may be less practical to tangibly measure and track, requiring additional effort to develop appropriate monitoring mechanisms. There may be lessons to learn from Open Government initiatives that have a citizen engagement component.

Policies and instruments are developed and implemented at multiple levels and scales. Open science policy development must consider not only national governments but also institutions, disciplines and entities such as regional funding organizations and publishing organizations.

The lack of merit structures was seen as one of the largest obstacles to implementing open science practices. One of the main policy needs is to connect open science with incentives (such as recognition and rewards) and the larger process of research assessment, by contrast to enforcement alone. Driving greater openness and transparency through recognition and assessment is key.

Open science does not come for free and is people-intensive, requiring change in culture. Some of the challenges are a) stable and continuous funding (and associated political support) and b) initiatives that are related to culture change, such as education, training and recognition. It is relatively "easy" to decree policies but hard to implement them.

Researchers need in-place support to handle the demands of open science on top of their existing tasks. New roles are emerging in academia, such as data stewards, that can help scientists in implementing the principles of the Recommendation and the specifics of their institutional mandates, and these roles must be addressed during policy development.

Policy awareness by actors (governments, funders, institutions, etc.) for affiliated researchers as well as financial support and incentives, where applicable, must be integrated in policy development and enforcement. In the experience of a major publisher, even a proportion of those researchers who are mandated to publish under open access are 1) not aware and/or 2) not enforced.

Supporting the implementation of policy through technology is also critical. In the words of Brian Nosek, ‘we need more tools not rules’. To follow compliance, the data source and infrastructure is needed. These open science infrastructures should themselves be designed to be open.

A key challenge is how to bring together information about different open science policies in one platform to facilitate comparisons of key topics and implementation methods. This Working Group is tasked with developing a global repository of open science policy instruments.

One of the main challenges for the policy directory, but also a priority task to be completed to facilitate a wholistic transition to open science, is to establish and agree upon the *taxonomy* of policies and their components (for example, whether a policy addresses open access, open research data, citizen science, and so on) and the *indicators* to use to monitor them. The selected indicators should illustrate what is actually happening, rather than limiting indicators to those reflecting what is supposed to happen. We need to learn to measure the outcomes of OS policy, namely to what extent OS policy becomes a part of everyday researchers' lives.

This task requires building partnerships and consensus among the several existing initiatives and discussions in several parts of the world about open science policy development, assessment and monitoring. It is also worth mapping the different components of the Recommendation with related policy areas. For instance, some of the actions on societal engagement will be around policy and policy instruments such as Germany's national strategy for citizen science, some will be commitments by research funders to public engagement or public dialogue, or responsible research and innovation, and so on.

Maintaining and updating national information in a global repository requires ongoing support. Because countries are required to report every four years under the Recommendation, there is already a basic mechanism for updating. The use of the UNESCO GO-SPIN platform can help.

The Working Group can exchange resources and create guidance for opening the infrastructure, framework and supportive policy environment for open science, based on the Recommendation.

Key resources mentioned:

- Mutual Learning Exercise of the EU about citizen science initiatives, policy and practice: https://ec.europa.eu/research-and-innovation/en/statistics/policy-support-facility/psf-challenge/mutual-learning-exercise-citizen-science-initiatives-policy-and-practice
- OpenAIRE Model Policy on Open Science for Research Performing Organizations
- A Compendium of Open Access/Open Science Policy Case Studies from African Higher Education Institutions: https://zenodo.org/record/6467301#.YqCnbpPMLbK

Call for papers on open science policies as an accelerator for achieving the Sustainable Development Goals

Adriana Bankston, Chief Executive Officer, Journal of Science Policy & Governance (JSPG), described the call for papers for the special edition of the Journal of Science Policy & Governance on Open science policies in collaboration with the Major Group for Children and Youth and the Global Young Academy; see: https://www.unesco.org/en/articles/call-papers-open-science-policies-accelerator-achieving-sustainable-development-goals

Additional links:

- bit.ly/JSPGOpenScience
- bit.ly/JSPGOpenScienceEvents
- Submissions: https://www.sciencepolicyjournal.org/submit.html

Next steps

Ms Ana Peršić presented the next steps for the Working Group on Open Science Funding and Incentives and invited feedback from participants on the Objectives of the Working Group, which are to:

- Guide the development of a global repository of open science policy instruments
- Develop an Open Science Policy Guide, based on identifying key steps and challenges in open science policy development

Working versions of these tools are expected by December 2022.

The Working Group members were invited to submit responses by 10 July 2022 to the following questions:

- What are the main policy needs for open science?
- What are the main challenges for creating and implementing OS policy?
- What are the existing/successful OS policy initiatives?
- What are the existing policy instruments?
- What are their strengths and weaknesses?
- *What information should a Global Repository on Open Science policies include?*

The next meeting of this Working Group will be held on 5 September 2022.

Mr Ezra Clark closed the meeting by thanking the group for their many positive contributions and questions. Participants were requested to continue contributing to the shared documents and themes of the Working Group.

Annex

List of participants in the first meeting of the Working Group on Open Science Policies and Policy Instruments

List of participants in the first meeting of the Working Group on Open Science Policies and Policy Instruments

1. Muhammad Abid, COMSATS University Islamabad, Pakistan
2. Sovan Acharya, Sa citizen science group, India
3. Cigdem Adem, Türkiye
4. Ralph Agrippine, Permanent Delegation of Seychelles to UN, Seychelles
5. Takafumi Aizawa
6. Raquel Ajates, UNED, Spain
7. Vlada Alekankina, The World Bank
8. Thomas Alexander, North Carolina State University, United States of America
9. Alwaleed Alkhaja, Qatar National Library, Qatar
10. Batool Almarzouq, Open Science Community, Saudi Arabia
11. Juan Pablo Alperin, Simon Fraser University, Canada
12. Pedi Anawi, Education International, Togo
13. Michael Arentoft, European Commission, Belgium
14. Anastasia Aritzi, OpenAIRE, Germany
15. Mohammad Shakeel Atchia, Mauritius Institute of Education, Mauritius
16. Innocent Azilan, IMSIC, France / Togo
17. Adriana Bankston, Journal of Science Policy & Governance (JSPG), United States of America
18. Katie Bannon, The World Bank, United States of America
19. Matteo Barbarino
20. Kristen Bos, University of Toronto, Canada
21. Mohamed Boufarss
22. Fiona Bradley
23. Anne Britton, Invest in Open Infrastructure, United States of America
24. Christoph Bruch, Helmholtz Association, Germany
25. Tung Tung Chan, Erasmus University Rotterdam, Netherlands
26. Shyama Chanthran
27. Yeonsoo Choi, Korean National Commission for UNESCO, Republic of Korea
28. Marica Cicconi, Permanent Delegation of Italy to UNESCO, Italy
29. Helen Clare
30. Jacquelyn Cragg
31. Antica Culina, Croatia
32. Judith De Haan, Utrecht University, Netherlands
33. Carla Di Paola, Permanent Delegation of Italy, Italy

34. Jitka Dobbersteinová, Slovak Centre of Scientific and Technical Information, Slovakia
35. Saritha Donthi, UNESCO Chair Community, India
36. Richard Dunks United States of America
37. Boris Engelson, Switzerland
38. Galina Enyaeva
39. Christopher Erdmann, American Geophysical Union (AGU), United States of America
40. Miho Funamori, National Institute of Informatics, Japan
41. Federica Garbuglia, European University Association, Belgium
42. Ed Gerstner, Springer Nature, United Kingdom of Great Britain and Northern Ireland
43. Sarah Gonzalez, World Data System, United States of America
44. Genny Govoni, Permanent Delegation of Italy to UNESCO, Italy
45. Cable Green, Creative Commons
46. Muki Haklay, UCL, United Kingdom of Great Britain and Northern Ireland
47. Takuro Hamasaki, Ministry of Education, Culuture, Sports, Science and Technology (MEXT, Japan
48. Jo Havemann, AfricArXiv
49. Kazuhiro Hayashi, National Institute of Science and Technology Policy, Japan
50. Libby Hepburn, Citizen Science Global Partnership, Australia
51. Tống Hùng, Trung tâm Công nghệ thông tin, Viet Nam
52. Benjamin Ignac, Taylor & Francis, Germany
53. Rue Ikeya, National Institute of Informatics, Japan
54. Natarajan Ishwaran, DDE, France
55. Nur Hanisah Ismail, Academy of Sciences Malaysia, Malaysia
56. Kerim Jaber
57. Tamara Kalandadze
58. Barbara Kalumenos, STM
59. Dr Muazzam Ali Khan Khattal, Quaid-i-Azam University, Islamabad, Pakistan
60. Andrzej Klimczuk, SGH Warsaw School of Economics, Poland
61. Markus Konkol, University of Twente, ITC, Netherlands
62. Hanna Lahdenperä, Secretariat for the National Open Science and Research Coordination, Finland
63. Hanna Lappalainen, University of Helsinki, Finland
64. Nghia Le Trung
65. Helena Ledmyr, INCF, Sweden
66. Jerry Li
67. Jiameng Lu

68. Mathew Lubari, Community Creativity for Development (CC4D-Uganda), Uganda
69. Rugiyya Malikova, Permanent Delegations of Azerbaijan to UNESCO, Azerbaijan
70. Natalia Manola, OpenAIRE AMKE, Greece
71. Sinisa Marcic, Regional Cooperation Council
72. Claudia Medeiros, Brazilian Academy of Sciences/University of Campinas, Brazil
73. Yasuyuki Minamiyama, National Institute of Informatics, Japan
74. Yves et Nachbaur, CCIC UNESCO, France
75. Kamran Naim, CERN
76. Alena Nikolaeva, Ministry of Science and Higher Education, Russian Federation
77. Martina Noero, Permanent Delegation of Italy to UNESCO, Italy
78. Daniel Nyanganyura, African Science, Technology and Policy Institute, South Africa
79. Niamh O'Connor, PLOS, Germany
80. Chloe O'Donnell, Springer Nature, United Kingdom of Great Britain and Northern Ireland
81. Aoife O'Mahony, Major Group for Children and Youth, United Kingdom of Great Britain and Northern Ireland
82. Omo Oaiya, Library Support for Embedded NREN Services and E-infrastructure (LIBSENSE)
83. Edwin Obaje, ScienceSquad Africa, Nigeria
84. Titus Owiti
85. Nora Papp
86. Alison Parker, The Wilson Center, United States of America
87. Louise Poissant, FRQSC, Canada
88. Vanessa Proudman
89. Aimeé Pujadas Clavel, Permanent Delegation of Cuba to UNESCO, Cuba
90. Susan Rafferty, University College Cork, Ireland
91. Mayya Revzina, The World Bank, United States of America
92. Massimo Riccardo, Permanent Delegation of Italy to UNESCO, Italy
93. Eloy Rodrigues, COAR
94. Johan Rooryck, cOAlition S, Belgium
95. Laura Rovelli, CLACSO, Argentina
96. Abdelgadir Salih
97. Francisco Sanz, Fundación Ibercivis, Spain
98. Pamela Selormey, Council for Scientific and Industrial Research, Ghana
99. Kathleen Shearer, Confederation of Open Access Repositories (COAR)
100. Xuesong Shen, Permanent Delegation of Republic of China to UNESCO, China
101. Jadranka Stojanovski, University of Zadar / Ruđer Bošković Institute, Croatia
102. Madiareni Sulaiman, National Research and Innovation Agency (BRIN), Indonesia

103. Michael Svendsen
104. Zarena Syrgak
105. Jakub Szprot, University of Warsaw, Poland
106. George Thomas, Frontiers, Switzerland
107. Klaus Tochtermann, ZBW - Leibniz Information Centre for Economics, Germany
108. Prue Torrance, National Health and Medical Research Council, Australia
109. Pantelis Tziveloglou, European Commission
110. Yusuke Umeda, Permanent Delegation of Japan to UNESCO, Japan
111. Inge Van Nieuwerburgh, OpenAIRE, Belgium
112. Astrid Verheusen, LIBER, Netherlands
113. Stephen Wyber, IFLA, Netherlands
114. Ning Xu, Permanent Delegation of Republic of China to UNESCO, China
115. Kazu Yamaji, National Institute of Informatics, Japan
116. Victoria Yan, EMBL (European Molecular Biology), Germany
117. Fernanda Yanchapaxi, University of Toronto, Canada