



Implementation of the UNESCO Recommendation on Open Science

First meeting of the Working Group on Open Science Capacity Building

12 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 first session of these Working Groups, with the aim of discussing existing initiatives, opportunities and gaps for Open Science capacity building. It was held on 12 May 2022 on the Zoom platform.

To support equitable and well-resourced capacity building to effectively implement the Recommendation on Open Science, the deliverables of the Working Group on Open Science Capacity Building will include:

- compilation/index of the existing Open Science training modules and materials with the aim of selecting training materials to be hosted on a UNESCO Open Science Capacity Building Platform/Index;
- analysis of capacity building gaps and needs; and
- creation and delivery of new and additional training modules on open science for different open science actors.

Recognizing the need for capacity in Open Science skills and practices 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 building capacity for Open Science; to present the different existing materials and mechanisms that are freely available for building capacity; and to exchange on gaps and opportunities.

Report

The online meeting brought together over 90 participants from over 40 countries. Seven experts were invited to speak about key capacity building initiatives, namely:

- **Ms Paola Masuzzo**, Data Scientist and Researcher at IGDORE, the Institute for Globally Distributed Open Research and Education in Belgium, who participated in the creation of the Open Science Massive open online course (MOOC) which is now hosted by IGDORE;
- **Ms Iryna Kuchma**, Open Access Programme Manager at EIFL (the Electronic Information for Libraries), who has also been involved in the Horizon2020 FOSTER project of the European Union on open science and was one of the members of UNESCO's advisory committee on open science which had an advisory role with the development of the Recommendation;
- **Mr Lautaro Matas**, Executive Secretary and Technical Manager of the Open Access to Science Repositories Network – LA Referencia;
- **Ms Joy Owango, Founding Director, Training Centre in Communication, based in Kenya and Ms Johanna Havemann**, the manager of AfricArXiv, a free community-led digital archive for African research;
- **Ms Eunjung Shin**, Director of Institutional Innovation Research at the Institute of Science and Technology Policy in South Korea who also served on the UNESCO Advisory Committee for Open Science;
- **Mr Tom Arrison**, Director of the Board on Research Data and Information at the US National Academies of Sciences, Engineering, and Medicine who has been involved in the discussions led by the NAS on Developing a Toolkit for Fostering Open Science Practices; and
- **Ms Jennifer Miller**, an independent consultant with a background in teaching and public policy who recently created an Open Syllabus on the UNESCO Recommendation on Open Science.

All the regions were represented with attendees from universities; research institutes, from early career researchers to research directors and open science experts/officers and in fields from medical and natural sciences to human sciences; education institutes and education initiatives, from educators to decision makers/managers; citizen science experts; National Academies of Science; associations of universities; librarians; open science and open education initiatives; research funders; OA publishers; Permanent Delegations to UNESCO; and UNESCO Category 2 Center and UNESCO Chairs.

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

- existing capacity building materials, their strengths and gaps;
- the need for Open Science training materials to be open and adaptable, given the different needs of different audiences;
- the need for capacity building to address incentives and procedures in addition to technical skills;
- opportunities and needs for leveraging partnerships to operationalize capacity building; 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 objective of the open science capacity building and training activities is to create, enhance and develop the capacity of different open science actors at individual, institutional and national level to understand, design, implement, supervise and monitor open science practices in line with the UNESCO Recommendation on Open Science;
- Capacity building for Open Science must be grounded in stronger awareness of the need for Open Science, supported by training in Open Science practices and tools;
- A range of capacity building modules and materials are already freely available, with growing language diversity;
- Existing materials are more focused on the pillar of open scientific knowledge, especially open access and open data, and are primarily directed towards researchers and academia; therefore, attention to other audiences and other pillars identified in the Recommendation should be prioritized;
- Capacity building must be contextualized and must involve genuine engagement, beyond the provision of training materials;
- Partnerships are essential for implementing local, contextualized training and capacity building, given that the availability of training materials is only the beginning;
- The Working Group must identify ways to ensure, monitor and evaluate the implementation of these Open Science materials and capacity building initiatives across regions;
- UNESCO's role in open science capacity building includes:
 - the development of the core principles and approaches for capacity building, which can then be adapted and contextualized by local actors as they develop, adapt and use training materials,
 - the development of a global, searchable repository of existing creditable training materials, facilitating their re-use and adaptation in multilingual and multicultural contexts, and
 - global framework for Open Science capacity building 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.

Objectives of the Working Group

Ms Ana Persic, Programme Specialist, Science Technology and Innovation Policy, UNESCO, [presented](#) the key objectives. Beginning with a mapping of existing training initiatives and materials, a gap analysis will be conducted to identify priority topics and audiences for the development of new training materials. Materials will be selected and/or developed for hosting on a new UNESCO Open Science Capacity Building platform/index, to be launched in December 2022. Continued efforts will be needed to fill in the gaps, implement capacity building and monitor the impact.

The main themes of the proposed capacity building were identified as follows, in line with the Recommendation on Open Science:

Open Science Learning/Training Modules
Open Science: Definition/Scope/Values/Principles
Open Scientific Knowledge <ul style="list-style-type: none"> <input type="checkbox"/> Open Access <input type="checkbox"/> Open Research Data <input type="checkbox"/> Open Educational Resources <input type="checkbox"/> Open Source/Software/Source code <input type="checkbox"/> Open Hardware
Open Science Infrastructures
Open Science and Engagement of Societal Actors
Open Science and Indigenous Knowledge Systems
Open Science Policy Instruments
Open Science Funding and Incentives
Open Science and IPRs
Open Science for Early Career Scientists
Open Science Monitoring

Ms Persic invited feedback from participants on the Objectives of the Working Group.

Participants asked whether there were ongoing mitigation measures to ensure that the efforts of the UNESCO Working Groups are not skewed towards high-income countries, noting that representation from across the globe is an important starting point. The importance of contextualization was noted by several participants.

Regarding the contextualization of capacity building, by field and/or by region, this Working Group can identify the fundamentals of Open Science capacity and capacity building, providing a framework that can then be adapted by local actors. This work of capacity building was seen on two levels:

1. Identifying why Open Science is important and how it differs from science as usual
2. Identifying how to implement Open Science

Participants noted the need for mapping efforts to provide awareness and facilitate a structured approach with oversight, noting that there are already many initiatives working towards openness in science.

Capacity building includes training of individuals but also of institutions or organizations. Effectively implementing the Recommendation will require addressing incentives and procedures, in addition to creating and sharing openly available training modules or materials.

Existing capacity building initiatives across regions

The invited experts spoke briefly about existing initiatives and regional perspectives in capacity building for open science. The [presentation slides](#) and [meeting recording](#) are available online.

Mr Tom Arrison described the discussions led by the US National Academies of Science, Engineering and Medicine (NAS) on developing a Toolkit for Fostering Open Science Practices. The toolkit was developed under the auspices of the [Roundtable on Aligning Incentives for Open Science](#) convened by the NAS. The toolkit is a modular set of resources that can be adapted by a range of research stakeholders to improve research incentives. This toolkit is intended to assist university leadership, academic department chairs, res funders, learned societies and government agencies seeking to align incentives for open science. The toolkit materials can be adapted for a range of use cases, including language for hiring and promotion, grantmaking and parameters for good practices for openly sharing research products, and includes an open science success stories database.

- See: <https://osf.io/t4baw/> and Toolkit (as Appendix C of the Workshop Report): <https://www.nationalacademies.org/our-work/developing-a-toolkit-for-fostering-open-science-practices-a-workshop>

Ms Paola Masuzzo [provided an introduction](#) to the Open Science massive open online course (MOOC, see <https://github.com/OpenScienceMOOC>), which is now hosted by IGDORÉ and is one of the most comprehensive MOOCs that exist on open science. The goal is to create a community, not only a resource. There are approximately 1,800 MOOC users, with additional followers on social media. The engagement has been strongest from early career researchers and students. The MOOC modules are developed by the community for the community. The course relies on the efforts of volunteers, with the framework of contribution guidelines and a re-

use toolkit. Several modules are completed and available as free learning resources; others are in development with materials available in the open Slack working space. Current plans include content development or updating, boosting the facilitation of multi-disciplinary, multilingual and multicultural participation, and leveraging partnerships to expand collaborations and support the MOOC. Ms Mazusso compared the state of open science five years ago and today, noting that there is reason to rejoice and expect real transformation.

Ms Iryna Kuchma spoke about one of the achievements of the Horizon2020 FOSTER project of the European Union: the FOSTER Open Science portal, an e-learning platform that brings together a series of training resources on open science. Each module is available for re-use with a standard format for integration (SCORM for knowledge management systems). The FOSTER project has now come to an end, but the materials are still openly available and ongoing efforts are building on the modules, including leadership programmes in Africa. FOSTER also produced an [Open Science Training Handbook](#) in multiple languages and a short Roadmap for Implementing Open Science Training Practices in Research Institutions: <https://zenodo.org/record/1209175#.Yn0E-ehBw2y>

Mr Lautaro Matas described La Referencia and spoke of key training initiatives and materials available through La Referencia and more broadly in the Latin American region. La Referencia hosts the Latin America Open Science Repository Network (est. 2012), which recognizes scientific production not only as the literature but also as the data and metadata of the inputs, products and processes of scientific research work. La Referencia is also a political initiative with government representatives across the region. Following a [2021 memorandum of understanding](#) with Research Data Alliance United States (RDA-US), an internal working group launched a survey of science and technology organisations to identify topics of interest for training activities focused on research data. In 2022, La Referencia will be launching an online resource centre with all past and future training outcomes, including workshop recordings, presentations and documents, tagged according to user profiles. Multilingual learning resources are a priority for the LAC region, and early efforts will focus on Spanish and Portuguese translations of global training materials available in English.

Ms Johanna Havemann [provided](#) highlights on the existing open science capacity building training initiatives and resources in Africa (see [open spreadsheet](#)). A broad range of actors are building Open Science across the African region, with the number of tools expanding quickly. Ms Havemann suggested adding open peer review as another key element of open scientific knowledge, as part of the scientific workflow and an important generator of collaboration. AfricArXiv and four other partners are running peer review training activities, supported by the Wellcome Foundation. Regarding open source, open code and open data, the African Open Science Platform has begun stocktaking of capacities and resources in the region. Multiple institutions and projects are engaging in practices of open science, with capacity building conducted within projects or via workshops. Regional communities, such as Carpentries in Africa, are also a mechanism for self-led capacity building. Open hardware, thanks to its attention to affordable and accessible devices and equipment, is a key opportunity for the continent. The connection to Indigenous Knowledge Systems is valued and supported by tools such as the San Code of Research Ethics, although capacity building in the science–Indigenous Knowledge connection remains limited. The [Local Contexts Project](#) (generated outside of Africa) has developed digital markers that define attribution, access and use rights for knowledge that is the property of communities.

Ms Jennifer Miller presented the Open Syllabus on the UNESCO Recommendation on Open Science, a complete course with assessment resources made available via Wikiversity and

archived on Zenodo, complete with its SCORM package for integration into standard knowledge management systems. The project was developed within the UNESCO-supported initiative Open Education for a Better World. The course content is targeted at early career researchers, with the course materials intended to be taught by STEM faculty who will serve as open science champions in their institutions or fields. Ms Miller emphasised her use of the Recommendation as the global framework for open science and her decision to place the teaching of open science firmly within the framework of human rights, a necessary component for her community of STEM and policy students within North America. She took a university-focused approach in developing the syllabus, designing it to meet typical requirements for a credit-bearing course in US higher education while being adaptable for other contexts. She provided a brief overview of the syllabus and ideas for its promotion and scaling. A train-the-trainer session is being offered in July 2022 at the FORCE11 Scholarly Communication Institute. Additional training sessions and adaptation of the syllabus for additional contexts (geography, discipline, and so on) could expand the reach and applicability of the course.

- Link to the Wikiversity version with interactive questions (participants noted that self-check questions are very useful):
https://en.wikiversity.org/wiki/UNESCO_Recommendation_on_Open_Science
- Materials archived on Zenodo: <https://zenodo.org/record/5823531#.YnUIjPPMLbJ>

Ms Eunjung Shin presented a broad overview of capacity building for Open Science in the Asia-Pacific region. Open Science has been introduced and discussed in multiple regional workshops in the past two years, such as those held by UNESCO Regional Science Bureau for Asia and the Pacific, APEC PPSTI's Policy Sharing Webinar co-organized with the International Science Council Regional Office for Asia and Pacific, and the annual meetings of specialized regional networks such as the Confederation of Open Access Repositories–Asia (COAR–Asia) and Asian and Pacific Rim Research Integrity (APRI). STEPAN (Science, Engineering, Technology and Innovation Policy Asia and the Pacific Network) resumed in 2021 with setting a key action area on open science. Existing capacity building initiatives primarily address research data, repositories and open science tools, based on a 2020 survey by the UNESCO Regional Science Bureau for Asia and Pacific. Gaps remain in technical and operational skills, digital literacy and capacity for leveraging resources for open science. Those who develop and manage data repositories and knowledge hubs need training in the reasons and mechanisms for Open Science. Awareness of Open Science in general must be strengthened. It would be beneficial to enhance the communication of Open Science principles, in addition to specific technical skills. The region would benefit from a clustered approach to identify and scale up current capacity building initiatives, connecting similar initiatives throughout the region. UNESCO could serve as a hub to address the growing demand for training and capacity building resources for Open Science.

Open Discussion on Open Science Capacity Building: 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.

The group agreed to focus on collecting open-licensed, adaptable training materials broad enough to serve the needs of different regions. From that starting point, institutions or country practitioners can add their local open science practices and discipline-specific examples. Identifying the

audience for each training material included in the mapping exercise is important because the attention to different audiences has not been even.

Participants noted that this working group could contribute greatly to understanding what biases exist in existing training materials and how they are focused, with regard to the intended audience for training (such as citizens, scientists or organizations) and specific content matter or subsection of open science as defined in the Recommendation. A specific request was made for modules or materials on Open Science policy development, policy implementation and policy evaluation, with attention to balancing local and international requirements.

Some key highlights mentioned by the participants include the following:

Audiences need context-specific resources and the delivery at the local scale is important, requiring support beyond the provision of tools and materials online. Regional centres and agencies play a key role in providing time-bound workshops, where trainees can also provide information about their learning priorities and needs as well as the success of specific capacity building initiatives.

Scaling up Open Science requires leveraging partnerships for capacity building. Universities were noted as the crucial point of leverage and change towards Open Science, as an avenue for training not only students but also faculty, administrators and operational staff throughout the scope of the scientific enterprise.

Preparation and sharing of capacity building resources is only the beginning. The Working Group must identify a way to ensure, monitor and evaluation the implementation of these Open Science materials across regions. There is a need for coordination and internal awareness. Institutional and national Open Science Communities can help to address structural issues and identify ways to start.

Capacity building must include both elements described above: building awareness of the need and opportunities for Open Science, as well as building capacity for the use of specific Open Science tools and approaches. For instance, libraries and universities are leading the work on open access but there is limited engagement from researchers, many of whom see their role in open access as just complying with one more mandate.

There is a need to foster ownership and participation by scientists of the Open Science movement, including open access.

Capacity building was noted as distinct from collections of Open Science tools and services (see collation by Jo Havemann and colleagues: <https://docs.google.com/spreadsheets/d/1vnA1oaO87WLxRpmqRmub3YLJcojQJkLmrOcv-Em2IAA/edit#gid=859114116> ; see also <https://zenodo.org/record/4013975>).

A key related aspect that capacity building for Open Science should include is citizen and participatory science, which is a key means for the open engagement of societal actors. The 'science of citizen science' has produced relevant insights and materials on how to open up the scientific process involving communities, 'citizens' and members of the general public.

For training materials on citizen science, specific resources mentioned were:

- the eu-citizen.science platform:
 - Trainings: https://eu-citizen.science/training_resources
 - MOOC: <https://moodle.eu-citizen.science>

- the WeObserve project's collation of resources for capacity building on Citizen Science in a 'Cookbook' to strengthen particular aspects of implementation: <https://www.weobserve.eu/weobserve-cookbook/>
- the [Open and Collaborative Science in Development Network \(OCSDNet\)](#), specifically the work on situated openness.

The Mozilla Open Life Sciences programme was mentioned as a model: <https://openlifesci.org/index#a-mentoring--training-program-for-open-science-ambassadors>

The emerging Open Science Community of Saudi Arabia was also mentioned (materials/slides are available via Zenodo: <https://zenodo.org/communities/1231231664/?page=1&size=20>)

The participants requested a shared working space or mechanism for cooperative work over the coming months, with time to provide input to the mapping exercise.

Next steps

Ms Ana Persic presented the next steps for the Working Group on Open Science Capacity Building. Following the mapping of existing training initiatives and materials, a gap analysis will be conducted to identify priority topics and audiences for the development of new training materials. A new UNESCO Open Science Capacity Building platform/index will be launched later in 2022 or early in 2023, presenting a selection of the existing materials.

Ms Persic presented a preliminary mapping of existing training materials, focused on complete courses or modules, to which the group was requested to provide input via an [online questionnaire](#). The training materials were characterized using: alignment with pillars and key learning objectives from the Recommendation; expert entity/entities creating or hosting the material; intended audience; language(s); region/country of hosting; year of most recent update; license status / availability for adaptation and re-use; method of monitoring; and type of training material. During the meeting, the participants requested an additional criterion: research discipline.

The aim for the platform/index is the development of a searchable database according to pre-specified criteria (such as type of resource, Open Science practice(s) addressed by the resource, target audience, language, and so on). A participant brought up the challenge of addressing the many training materials that exist that do not focus specifically on Open Science but touch on related issues, such as responsible research and innovation, digital skills or reproducible research.

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 Capacity Building

List of participants in the first meeting of the Working Group on Open Science Capacity Building

1. Muhammad Abid, COMSATS University Islamabad, Pakistan
2. Sovan Acharya, Sa citizen science group, India
3. Cigdem Adem, Türkiye
4. Batool Almarzouq, University of Liverpool, Saudi Arabia
5. Saeed Alsayed
6. Roheena Anand, PLOS, United Kingdom of Great Britain and Northern Ireland
7. Aini Suzana Ariffin
8. Tom Arrison, US National Academies of Sciences, Engineering, and Medicine, United States of America
9. James Ashaley, Ghana Irrigation Development Authority, Ghana
10. Mohammad Shakeel Atchia, Mauritius Institute of Education, Mauritius
11. Flavio Azevedo, University of Cambridge, Germany
12. Innocent Azilan, Institute of Research for Development (IMSIC), France / Togo
13. Alessandra Baccigotti
14. Aleksandra Barac, Clinical Center of Serbia, Serbia
15. Ginny Barbour, Open Access Australasia, Australia
16. Christof Bareiss, Swiss FDFA (Federal Department of Foreign Affairs), Switzerland
17. Arianna Becerril, Autonomous University of the State of Mexico, Mexico
18. Arielle Bennett, Tools, Practices, Systems, The Turing Institute, United Kingdom of Great Britain and Northern Ireland
19. Frank Landon Bentum, Africa Open Science Hardware, Ghana
20. Geoffrey Boulton, International Science Council, United Kingdom of Great Britain and Northern Ireland
21. Anne Britton, Invest in Open Infrastructure, United States of America
22. Shyama Chanthran
23. Jane Chukwudebelu, FIRO, Nigeria
24. Marica Cicconi, Permanent Delegation of Italy to UNESCO, Italy
25. Ilídio André Costa
26. Jacquelyn Cragg
27. Kathleen Crowley, University of Limerick Library, Ireland

28. Sharizad Dahlan, ISTIC, Malaysia
29. Ujishi Daiki, Japan
30. Sunje Dallmeier-Tiessen, CERN, Switzerland
31. Kate Davis, Council of Australian University Librarians, Australia
32. Stas Davydenko, Russian Academy of Sciences, Russian Federation
33. Sushanta De, The Young Explorers' Institute for Social Service, India
34. Billy James Dega, SEEDAfrique, Ghana
35. Erhu Deng, China
36. Carla Di Paola, Permanent Delegation of Italy to UNESCO, Italy
37. Bandiougou Diawara, Permanent Delegation of Cameroon to UNESCO, Cameroon
38. Saritha Donthi, UNESCO Chair E, India
39. Haipeng Du, IKCEST, China
40. Anja Eggert
41. Galina Enyaeva
42. Chris Erdmann, American Geophysical Union (AGU), United States
43. Ying Fang, IKCEST, China
44. Susann Fiedler
45. Sophie Forcadell, Sciences Po, France
46. Eric Foto
47. Chelle Gentemann, NASA, United States of America
48. Clara Ginther
49. Margaret Gold, Citizen Science Lab, Leiden University, Netherlands
50. Sarah Gonzalez, World Data System, United States of America
51. Genny Govoni, Permanent Delegation of Italy to UNESCO, Italy
52. Monica Granados, Creative Commons, Canada
53. Najet Guefradj
54. Sepo Hachigonta, NRF, South Africa
55. Heide Hackmann, Future Africa, University of Pretoria, South Africa
56. Takuro Hamasaki, Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
57. Qunli Han, International Knowledge Centre for Engineering Sciences and Technology (IKCEST), China

58. Houmado Hasna, Permanent Delegation of Djibouti to UNESCO, Djibouti
59. Johanna Havemann, AfricArXiv
60. Masaharu Hayashi
61. Verena Heise
62. Libby Hepburn, Citizen Science Global Partnership, Australia
63. Kate Hertweck, CZI, United States of America
64. Taka Horio, MEXT, Japan
65. Pen-Yuan Hsing
66. Malika Ihle
67. Nur Hanisah Ismail, Academy of Sciences Malaysia, Malaysia
68. Yvonne Ivey, NASA, United States of America
69. Tamara Kalandadze
70. Niharika Kaul
71. Muhammad Abdullah Khan, Quaid-i-Azam University, Pakistan
72. Danny Kingsley, Flinders University, Australia
73. Miriam Kip, Berlin Institute of Health at Charité, Germany
74. Markus Konkol, UT, ITC, Netherlands
75. Kristina Korshunova, Eindhoven University of Technology, Netherlands
76. Mojca Kotar, University of Ljubljana, Slovenia
77. Gitte Kragh, Aarhus University, Denmark
78. Iryna Kuchma, EIFL (the Electronic Information for Libraries), Ukraine
79. Vincent Larivière, Université de Montréal, Canada
80. Nghia Le Trung
81. Lincky Lesufi
82. Chang Liu, IKCEST, China
83. Jiameng Lu, NatcomCN, China
84. Mathew Lubari, Community Creativity For Development (CC4D-Uganda), Uganda
85. Juncai Ma, Institute of Microbiology and the Information Centre, Chinese Academy of Sciences, China
86. Aisha Mahmood, University of Education, Lahore, Pakistan
87. Giulia Malaguarnera, OpenAIRE, Greece

88. Sinisa Marcic, Regional Cooperation Council
89. Paola Masuzzo, IGDORÉ, Belgium
90. Lautaro Matas, Open Access to Science Repositories Network – La Referencia
91. Nokuthula Mchunu, NRF-AOSP, South Africa
92. Neha Midha, UNESCO New Delhi, India
93. Christine Mieck
94. Jennifer Miller, Open Education for a Better World (OE4BW), United States of America
95. Karolina Minch, University of Warsaw, Poland
96. Rita Morais, European University Association (EUA), Belgium
97. Mikael Myllykoski
98. Chikako Nagaoka, NII, Japan
99. Kamran Naim, European Organization for Nuclear Research, Switzerland
100. Hong Son Ngo, Phenikaa University, Viet Nam
101. Alena Nikolaeva, Ministry of Science and Higher Education of the Russian Federation, Russian Federation
102. Chifumi Nishioka
103. Martina Noero, Permanent Delegation of Italy to UNESCO, Italy
104. Daniel Nyanganyura, African Science, Technology and Policy Institute, South Africa
105. Omo Oaiya, Library Support for Embedded NREN Services and E-infrastructure (LIBSENSE)
106. Sibylle Obriest, Permanent Delegation of Switzerland to UNESCO, Switzerland
107. Joy Owango, Training Centre in Communication, Kenya
108. Louise Poissant, FRQSC, Canada
109. Pedro Príncipe
110. Aimeé Pujadas Clavel, Permanent Delegation of Cuba to UNESCO, Cuba
111. Aziz Rehman, Pakistan
112. Massimo Riccardo, Permanent Delegation of Italy to UNESCO, Italy
113. Andrey Romanov, Ministry of Science and Higher Education of the Russian Federation, Russian Federation
114. Abdelgadir Salih
115. Sergio Santamarina, Universidad Nacional de José C Paz, Argentina
116. Antonio Schettino, Erasmus University Rotterdam, Netherlands

117. Xuesong Shen, Permanent Delegation of the People's Republic of China to UNESCO, China
118. Eunjung Shin, STEPI (Science and Technology Policy Institute), Republic of Korea
119. Megha Sud, ISC, France
120. Ai Sugiura, UNESCO, Jakarta Office
121. Madiareni Sulaiman, National Research and Innovation Agency (BRIN), Republic of Indonesia, Indonesia
122. Zarena Syrgak
123. Sergey Terashkevich, Ministry of Science and Higher Education of the Russian Federation, Russian Federation
124. Qi Tian, IKCEST, China
125. Ulf Toelch
126. Minh Phú Tông, MOST, Viet Nam
127. Miroslav Trajanovic
128. Elena Trim, University of Guyana, Guyana
129. Anh Tuan Truong, Viet Nam
130. Emmy Tsang, Invest in Open Infrastructure
131. Yusuke Umeda, Permanent Delegation of Japan to UNESCO, Japan
132. Shanmugasundaram Venkataraman, OpenAIRE
133. Juanle Wang, Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Science; IKCEST-DRR, China
134. Uta When, IHE Delft Institute for Water Education, Netherlands
135. Ning Xu, Permanent Delegation of the People's Republic of China to UNESCO, China
136. Zhijun Yi, Chinese Academy of Sciences, China
137. Katerina Zourou, Web2Learn, Greece
138. Raúl Zurita-Milla, University of Twente. Faculty ITC, Netherlands