

## Future of Open Science foreseen with society: report on a multi-stakeholder workshop in Japan

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It is important that research projects solve social issues, such as global environmental problems, and the falling birthrate, and the aging population. Here, a transdisciplinary approach is needed in which researchers take co-leadership roles to make decisions to solve issues through the process of the co-design of the research agenda, co-production of knowledge, and co-dissemination of the results, based on equal dialogue and deliberation. It is also noted that *pro bonos*, or skilled volunteers providing technical knowledge such as on ICT technologies and social design, have actively been involved in projects driven by social issues. Therefore, it is anticipated that researchers and *pro bonos*—experts in other words—will increasingly strengthen ties with diverse societal stakeholders and that innovative solutions to social issues will be accelerated by promoting open research data to citizen scientists. These actions may contribute towards promoting the movement of open science by paying more attention to collaboration with society. However, few reports focus on practical methods and problems in promoting open science in this direction.

Aware of this situation, a multi-stakeholder workshop was held in Kyoto in January 2017. The workshop aimed at overviewing the current issues of open science from the multifaceted viewpoints of 37 participants, representing natural and social scientists, governmental officials, local municipality officials, industry managers and employees, *pro bonos*, and librarians, through an unconference-style dialogue, during which the topics of group talk were decided by participants *ad hoc*. One of the group talks revealed the necessity to conventionalize open science in each domain of research. Another group talk shed light on two functions of citizen science—the co-development of data infrastructure and the actions for social transformation. Another group pointed out the importance of the capacity building of bridging agents who facilitate the bidirectional interaction of knowledge systems between researcher communities and other societal actors. This paper recommends the actions required to promote open science in the light of social needs, by reorganizing the results of the workshop.

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