

# SCIENCE – A NEW UNIVERSAL RIGHT

## OPEN CITIZEN SCIENCE PROJECT RECOMMENDATIONS

### OPEN CITIZEN SCIENCE...

... is citizens' engagement in scientific and scholarly research in a way that does not require specific qualification or institutional affiliation. All participants receive credit and benefit from the results. The research process and publishing of results will be done as openly as possible, within legal and ethical limits.

[ECSA 10 Principles of Citizen Science >](#)

[Open Science and Research Roadmap for Finland >](#)



### TARGET STATE

- Science offers solutions to societal grand challenges without stumbling over academic hierarchies and interdisciplinary boundaries,
- citizen science is a tool and a resource for evidence based decision making,
- science affects locally and in the everyday lives of citizens,
- citizens' scientific literacy and engagement in research processes is of a high level,
- public funding for science is regarded as important among citizenry, and
- open discussion and information exchange between stakeholders leads to serendipitous novel insights and innovation.

### PRINCIPLES

#### A. Citizen participation is not just a method, but also an attitude and a value

Publicly funded research needs to benefit society and mankind. Recognizing the societal context of one's research is part of every scientist's work: who will benefit from the research, who could participate in it, how and where should the results be communicated so that they will have an impact?

#### B. Placing focus on knowledge instead of roles

The scientific community is a meritocracy. In citizen science all parties and their knowledge are equally valuable at the start. Only during the research process is the fruitfulness of each knowledge in terms of the research question evaluated. It also needs to be acknowledged, that during our age of mass immigration and exile, citizenship in the context of science and research is not tied to any passport.

#### C. Transdisciplinarity is a precondition for citizen science

To be successful all citizen science projects need methods and understanding from both of the main scientific cultures; natural sciences and humanities. Even when the aim is to generate knowledge about a natural phenomenon, planning the research requires cultural and societal understanding and insight on the participants' motivations. Transdisciplinarity can be sought by bringing together people from different fields of expertise, but also by adding interdisciplinary cross-pollination to researcher education.



## Open Knowledge Finland...

...executed the Open Citizen Science project for the Ministry of Education and Culture's Open Science and Research project between 9/2016 and 1/2017.

The project mapped out ongoing discussions on citizen science and heard stakeholders. In addition, the OKF Biodiversity Map project was utilized for evaluating research infrastructure needs for citizen science.

For more information, please see [okf.fi/citizenscience](http://okf.fi/citizenscience)



## POLICY RECOMMENDATIONS

### 1. An open for all citizen science research infrastructure

There is a lack of platforms, tools and data storages for research, that do not require institutional affiliation from users. An open for all research infrastructure could be developed on top of existing resources.

### 2. Introduce data skills to all levels of education

Recently adopted national curricula for primary education in Finland introduces programming as a school subject. Data literacy and other data skills need to be equally regarded as basic civic skills for the digital era. Encouraging schools to partner in citizen science projects through stakeholder co-operation will support both programming and data education and phenomena based learning.

### 3. Make citizen science familiar through libraries

Finnish value science (Finnish Science Barometer 2016). The concept of citizen science, however, is still foreign to researchers and citizens alike. A publicity campaign in cooperation with municipal libraries can unlock the dormant potential for citizen science. The municipal library network is valuable for citizen science also as a permanent resource.

### 4. Clarify ownership and regulation of research materials

The rules and practices of using digital research materials need to be clarified with guidelines and models designed with citizen science in mind. Collaboration with data security officials is needed in order to make broad consent possible. A tailored license for securing consent is worth investigating. For citizen science resources that do not contain personal information a waiver (such as CCo) is a viable alternative to licenses and does not remove the moral obligation to cite sources.

### 5. Research funding for transdisciplinary research

Present research funding instruments do not adequately support transdisciplinary and multistakeholder research. More flexible funding schemes and/or entirely new mechanisms are required. One solution is to crowdsource themes and ideas for calls and then require citizen engagement from the selected projects.

### 6. Models for rewarding citizen scientists

Responsible conduct of research requires giving credit for contributions through for example article co-authorship (TENK 2012). Crediting and awarding merit must also apply to citizen scientists. This requires novel mechanisms of rewarding and motivating citizens.

### 7. Develop processes for ensuring excellence

Citizen science is about democratizing scientific processes, not scientific knowledge. Practices for educating citizen scientists on responsible conduct for research as well as ensuring the quality of research outputs must be developed.

