Fostering robust knowledge communities: Citizen Science 2030

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What is Citizen Science?

“scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions”

Oxford English Dictionary
Public Lab is a community where you can learn how to investigate environmental concerns. Using inexpensive DIY techniques, we seek to change how people see the world in environmental, social, and political terms. Join now »
1. International developments

Emerging Global Citizen-Science - network & research

International meeting of Citizen-Science-associations (North America, Australia, Europe, emerging associations in Asia and Africa) 2017 in Nairobi, Kenia
## Current List of Participant Organizations

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<td>ECSA</td>
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<td>ADEC Innovations</td>
<td>Forest People Programme (FPP)</td>
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<td>Adventure Scientists</td>
<td>Global CEO Alliance</td>
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<td>AR+ Action Research Plus Foundation</td>
<td>Global Mosquito Alert Consortium</td>
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<td>Barcelona Citizen Science Office</td>
<td>Group on Earth Observations- Earth</td>
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<td>CitizenScience.Asia</td>
<td>Observation and Citizen Science Community Activity</td>
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<td>Citizen Science Center Zurich</td>
<td>Italian Long-Term Ecological Research Network (LTER- ltlay)</td>
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<td>Citizen Science Interoperability Pilot</td>
<td>NASA Goddard Space Flight Center Process Improvement Project</td>
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<td>(CitSciPilot)</td>
<td>Norwegian Institute for Air Research</td>
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<td>Citizen Science Network Austria (CSNA)</td>
<td>OpenLitterMap</td>
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<td>Citizen Science Scotlan</td>
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<td>Co-Enterprise</td>
<td>Participatory Monitoring and Management Partnership</td>
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<td>CSA</td>
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<td>Curious Minds</td>
<td>Red Iberoamericana de Ciencl A Participativa (RICAP)</td>
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<td>Custodians of Rare and Endangered Wildflowers</td>
<td>Smart and Sustainable Action Association</td>
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<td>EarthWatch Institute</td>
<td>SPOTTERON Citizen Science</td>
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<td>The Federal Community of Practice for Crowdsourcing and Citizen Science</td>
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<td>The GLOBE Program</td>
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<td>UN Environment</td>
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<td>UNESCO</td>
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<td>US Environmental Protection Agency Citizen Science Community of Practice (EPA CoP)</td>
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<td>Wilson Center</td>
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## Founding Partners

![Founding Partners Logos](image)

## Supporting Partners

![Supporting Partners Logos](image)
Citizen science and the United Nations Sustainable Development Goals

Steffen Fritz, Linda See, Tyler Carlson, Mordechai (Muki) Haklay, Jessie L. Oliver, Dilek Faisal, Rosy Mondardini, Martin Brocklehurst, Lea A. Shanley, Sven Schade, Uta Wehn, Tommaso Abrate, Janet Anstee, Stephan Arnold, Matthew Billot, Jillian Campbell, Jessica Espey, Margaret Gold, Gerid Hager, Shan He, Libby Hepburn, Angel Hsu, Deborah Long, Joan Masó, Ian McCallum, Maina Muniafu, Inian Moorthy, Michael Obersteiner, Alison J. Parker, Maike Weissplug & Sarah West

Abstract

Traditional data collection is insufficient for achieving the United Nations Sustainable Development Goals (SDGs), as many datasets lack spatial and temporal coverage, are of limited quality, or are not easily accessible. Citizen science offers promise for improving data for the SDGs. It enables a bottom-up approach, allows for large spatial and temporal coverage, and can be used for monitoring change. Here, we review citizen science contributions to the SDGs and discuss data quality, data gaps, and lessons learned. We discuss how citizen science can help to overcome limitations of traditional data collection, and we advocate for enabling citizen science as a core component of data collection and access for achieving the SDGs.
International peer-reviewed journal

https://theoryandpractice.citizenscienceassociation.org/
Empowers national networks, Stakeholders and governments to generate and access local real-time data and tools

2. European perspective

Open Science Policy Platform 2016-2020
consisting of 25 members @ Europe wide remit

Members from
• Universities
• Research organisations
• Academies/learned societies
• Funding organisations
• Citizen Science Organisation
• Publishers
• Open Science Platforms
• Libraries
Citizen Science: now an integral part of European research policy and funding

Integrated advice of the Open Science Policy Platform (OSPP) Recommendations

Date of Adoption: 22nd April 2018 - Date of Publication: 29 May 2018

The recommendations have been split up into the 8 priorities identified from the EU Open Science Agenda
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<td><strong>Publicly funded Citizen Science projects (as part of FP9 projects) should actively apply the principles of Open Science (including openness and reuse of all research outputs, data and publications).</strong></td>
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<td>Research-performing organisations (RPOs) are encouraged to promote infrastructures and human capacity to create a supportive and open environment for Citizen Science, which can further strengthen the outreach of RPOs to society. Research libraries are well placed, amongst others, to contribute actively to the necessary coordination and communication infrastructures as well as relevant training, fostering skills such as community management, co-production of knowledge, Open Science standards and social diversity. Appropriate funding and incentives need to be put in place to support this endeavour.</td>
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<td>The EC must support an online toolkit for Citizen Science in Europe. This tool must promote Citizen Science as a European asset, offering an entry point and mutual learning space, interconnecting with existing activities and infrastructures at the European, national and local level. It should highlight particular achievements and best practices, and promote a clear set of principles, guidelines &amp; quality criteria for Citizen Science.</td>
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<td>Funding for Citizen Science projects should be flexible, long-term and allow for small or experimental projects in collaboration with key stakeholders to be funded. A small section of FP9 should be set aside for citizens to propose research topics or projects. These should be chosen on the basis that they are high risk, beyond traditional research fields and conform to the rigorous standards expected of other projects. Successful proposers will need to work with compliant institutions.</td>
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Vision for Citizen and Open Science in Europe

“Citizen science is fully part of open science. It respects open science principles, as all research activities should – not more, not less. By 2030, citizen science is recognised as an integral part of open science, producing reliable and trusted data and knowledge, and delivering measurable benefits to citizen scientists, science and society as a whole.”

Horizon Europe

“Open science will be the modus operandi of Horizon Europe. As such, citizen science, as a part of open science, should be fully integrated into Horizon Europe.” (EC Note, Jan 2019)
Citizen Science in Europe: Roadmap 2018-2020

- 01/2018 OSPP Reflection paper on Citizen Science
- 01/2019 Meeting of the OSPP
- Q1 2019 Issuing expert contracts on citizen science
- Q2/3 2019 Delivery of reports on citizen science in the natural and social sciences
- October 2019 High-level Helsinki workshop [FI Presidency]
- 01/01/2020 Start of Horizon Europe
- Q4 2020 Adoption of the ‘Berlin toolkits’ at the Berlin conference [DE Presidency]
National Citizen Science Networks in Europe

- **Bürger schaffen Wissen**
- **Netzwerk-Citizen Science Schweiz**
- **Extreme Citizen Science (ExCiteS)**
- **Open Air Laboratories (OPAL)**
The Platform for Sharing, Initiating, and Learning Citizen Science in Europe

Funding period: 2019 – 2022

Lead: Museum für Naturkunde Berlin
Researching Citizen Science

CA15212: Citizen Science to promote creativity, scientific literacy, and innovation throughout Europe

http://cs-eu.net/
Highlight 2020

Internationale Citizen-Science-Konferenz „A Citizen Science Decade 2020-2030“

- Theme: Citizen Science & Sustainable Development.
- When: October 2020, as part of the German EU Presidency 2020
- Funded by EC
- Together with: Citizen-Science-Festival (funded by BMBF)
3. Citizen Science in Germany

Citizen Science

Forschungs-Hiwis oder Partner?


Avanti Dilettanti?

Forschung von Laien für Laien: Nach der Rede von Akademiepräsident Günter Stock wird jetzt die Auseinandersetzung mit der Frage der Partizipation und der Rolle der Laien in der Wissenschaft fortgesetzt.

Zika, Dengue, Chikungunya – Übertragen sollen Mücken Sunday's Malaria-Netz sitzen 600 Mücken. Es ist eine der vielen Initiativen, die Bürger in die Wissenschaft einkaufen.

Das Leben als Labor


Text: Christian Sywertek
Illustration: Deborah Tyllick
Bürger schaffen Wissen
Die Citizen Science Plattform

buergerschaffenwissen.de
Projekte entdecken


- HackAIR: Bürger*innen messen Feinstaub
  Feinstaub selber messen. Diese Daten in einer öffnen Datenbank allen zugänglich machen. Und damit Anhaltspunkte schaffen für eine Zukunft mit sauberer Luft, Gesundheit, Klima, Stadt

- Die Wanderung des Admiralfalterm
  Admiralfalter wandern ähnlich wie Zugvögel jeden Herbst in die Süden? Neben eure Sichtungen und helfen dabei, die Wege des Admirals zu erforschen.

- Sample das Saarland
  Heben den mikrobiellen Schutz im Saarland und leisten einen Beitrag zur Erforschung neuer Medikamente. Mit dem Probensammel-Kit ausgestattet, kannst sofort losgebastelt werden.

- Clusterkopfschmerzen erforschen (CLUE)
  Leidest du unter Clusterkopfschmerzen oder Migräne? Beteilige dich jetzt an einem Forschungsprojekt, um die Ursachen und Auslöser der Krankheit besser zu verstehen.

- Repara/kul/tur
  Reparieren statt Wegschmeißen!
  Repara/kul/tur erforscht gemeinsam mit den Mitwirkenden von Repar-Cafés und Offenen Werkstätten Praktiken des Reparierens und Selbermachers.

- Hush City
  Die Hush City-App ruhrt, ruhige Orte in deiner Nachbarschaft entdecken und Wissenschafter*innen und Stadtplaner*innen dabei helfen etwas gegen den Lärm in den Städten zu tun!
Spreading across diverse disciplines

Phase ONE 2014-16

Establishing online platform and CS network in close collaboration with GEWISS-consortium.
Phase TWO 2017-19

• Consolidating and performing
• Rebrush & technical overhaul of homepage
• Growing the network
• Strategy process
Phase THREE 2020-22

- Quality Control
- Capacity Building
- Strengthening and expanding the network, reach and impact
What does the platform do

• Hosting and feeding the website
  www.buergerschaffenwissen.de

• …networking for and within Citizen Science

• …support and advice people how and interested, run or want to start Citizen projects

• …analyses and researches on Citizen Science

• …advocates and lobbies for Citizen Science
111 projects on platform (ten finished)
Public engagement and advocacy

- Newsletter: 800+ subscribers
- Facebook: 1,396 fans / 1,419 subscribers
- Twitter: 2,302 followers
Networking & supporting

• 2 workshops + 1 Forum CS @ year

• 20+ advisory sessions since beginning of 2018 (DZ), incl.
  • Scientific organisations
  • NGOs
  • Administrations & government
  • Media

• Memberships of (inter)national organisations
  • Qualitätskriterien (Österreich forscht)
  • Leibniz-AG Citizen Science
  • ECSA
Survey: Citizen Science Strategies in Europe

• pan-European Survey of Citizen Science Strategies and initiatives in Europe 2019
• joint initiative of the COST ACTION 15212 and the JRC
• Results based on the report by Marina Manzoni, Katrin Vohland, Claudia Göbel, Baiba Pruse, Sven Schade (doi:10.7479/myw2-9584)
Preliminary results

• **Geographical Coverage:** During April and May 2019, 43 replies were received from 31 European countries achieving a good geographical coverage, including eastern countries, and COST co-operating countries (Israel).

• **Terminology:** It was observed that both, the terminology used to describe CS practices, and the level of engagement from citizens, varies between all countries. Accordingly, also the perceived level of development declared by the respondents was not aligned to the same parameters (see examples used in the presentation).

• **Presence of CS practices in Europe:** official/institutional/authoritative CS Strategies at national level were identified only in a few countries (5), followed by local level and regional level, whereas most of them could not identify formal CS strategies.
Preliminary results

• **Areas and Disciplines of Coverage**: in most countries the areas where CS practices are present is Environment and Nature Protection (with pollution and biodiversity at the first place), but also land cover/use, Astronomy, Humanities, Social Science and Cultural Heritage. Half of them reported that CS practices are used to contribute some stage of the cycle for policy making processes. Emerging areas are Medicine and Health research, Smart Cities and Traffic, Economy, Arts and Historical sciences.

• **Actors and their roles**: Initiators are Scientific Institutions, NGOs/Associations/ Foundations and Self-regulated Communities whereas, funders are mainly Public Administration from National to Regional to Local level in decreasing order. The actual implementation is done by NGOs, Private companies and sectoral associations in the same decreasing order.
Preliminary results

- **Tool and methodologies**: As most used supporting tools and methodologies to support CS practices in Stakeholders Cooperation’s of Practitioners (CoPs), Networks and Platforms, followed by training courses and tutoring, Guidelines and BPs and Gathering events are named. Policy documents and regulation or the availability of shared physical spaces are rarely mentioned.

- **Impact on policy making processes**: in this context CS seems to affect first of all "resources" (Data) made available for policy making, followed by improving interactions amongst "actors", mostly on early stage "process" like early warning/anticipation and definition, followed by design, implementation and, lastly, monitoring, compliance and evaluation.
Preliminary results

• **Scientific impact** was observed especially with reference to Data Gathering and Science Communication, followed by Research Design, Software Development and Data Evaluation, whereas it is surprising to see Problem Definition lagging behind. This might suggest that citizens are not sufficiently engaged by the scientific society at the very beginning of research.

• **Impact on Society:** the first observations from the received responses suggest that CS is a tool for empowerment of citizens and the civil society in terms of (in order of importance); increase of scientific literacy, understanding of methodological research, improved collaboration, gathering evidence for documenting problems and identify alternative strategies for problem solving,

• **Economic impact:** at a glance impact in the economic sector seems to be perceived especially on the increase of social and technological innovation, followed by budget savings and consequent increase of budget availability to tackle additional issues of public concern.
Preliminary results

• **Pre-conditions** for CS successful development and sustainable engagement: increased relevance and impact, strong motivation, mutual benefits, common challenges, political will, efficient organization of stakeholders and agile bodies, long term funding, resources and alliances, mutual trust (scientist vs citizens vs policy), ICT as enabler, smart Data Governance including the need for robust QA and Impact Assessment frameworks, and adequate Feedback Mechanisms (policy vs scientists vs citizens).

• Generally, the main obstacles to the application and mainstreaming of CS approaches to policy making processes, is awareness by policy makers. Consequently, efforts should be invested at all levels to identify and promote the benefits of CS to policy making, which should lead to willingness in developing relevant strategies and long-terms sustainable plans.

Report: Citizen Science Strategies in Europe - preliminary findings from the pan-European Survey of Citizen Science Strategies and initiatives in Europe as part of a joint initiative of the COST ACTION 15212 and the JRC discussed in Cēsis, Latvia, 4th June 2019  
https://doi.org/10.7479/myw2-9584