

## Engaging communities in citizen science

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**Reviewed  
Conference**

ENGAGING CITIZEN SCIENCE CONFERENCE 2022,  
AARHUS UNIVERSITY, DENMARK, 25–26 APRIL 2022

**Reviewed by**

**Cathrine Marie Skovbo Winther**

**Abstract**

How can citizen science (CS) be engaging? What does engagement entail? Who needs to be engaged? What are the challenges and opportunities of engagement in CS? After two years of lockdown and isolation, these were some of the questions debated by engaged researchers, students, and practitioners at the ‘Engaging Citizen Science Conference 2022’, (CitSci2022), held April 25th–26th at Aarhus University, Denmark. The conference aimed to showcase and share knowledge, ideas, and innovations on engaging citizens in scientific processes to secure the field of citizen science to thrive and expand. Nearly 250 participants, mainly from Europe, participated in an extensive programme with various session formats that provided an interactive and inspirational space for presenting and negotiating experiences, challenges, and enthusiasm for CS. This review presents highlights from the event and some reflections from the reviewer, including thoughts on what engagement means, and concluding with focus points that practitioners, researchers, and students may consider when engaging citizens in science and organizing similar events in future.

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Citizen science

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Citizen science (CS) has gained significant attention and developed rapidly due to scientific and political interest in public participation in science and public engagement with science. The ‘Engaging Citizen Science Conference 2022’ (CitSci2022), hosted by Aarhus University, promoted the potential of CS as an interdisciplinary field that holds promise for boosting scientific research, increasing public participation in science, and empowering citizens in everyday life. The aim of the conference was to engage CS researchers, practitioners, and citizens in sharing research, ideas, and innovations to make the field thrive and expand. The

conference included four different session formats: workshops, dialogue roundtables, posters, and demonstrations. All sessions were organized around nine different themes (see Figure 1) [CitSci2022, 2022].

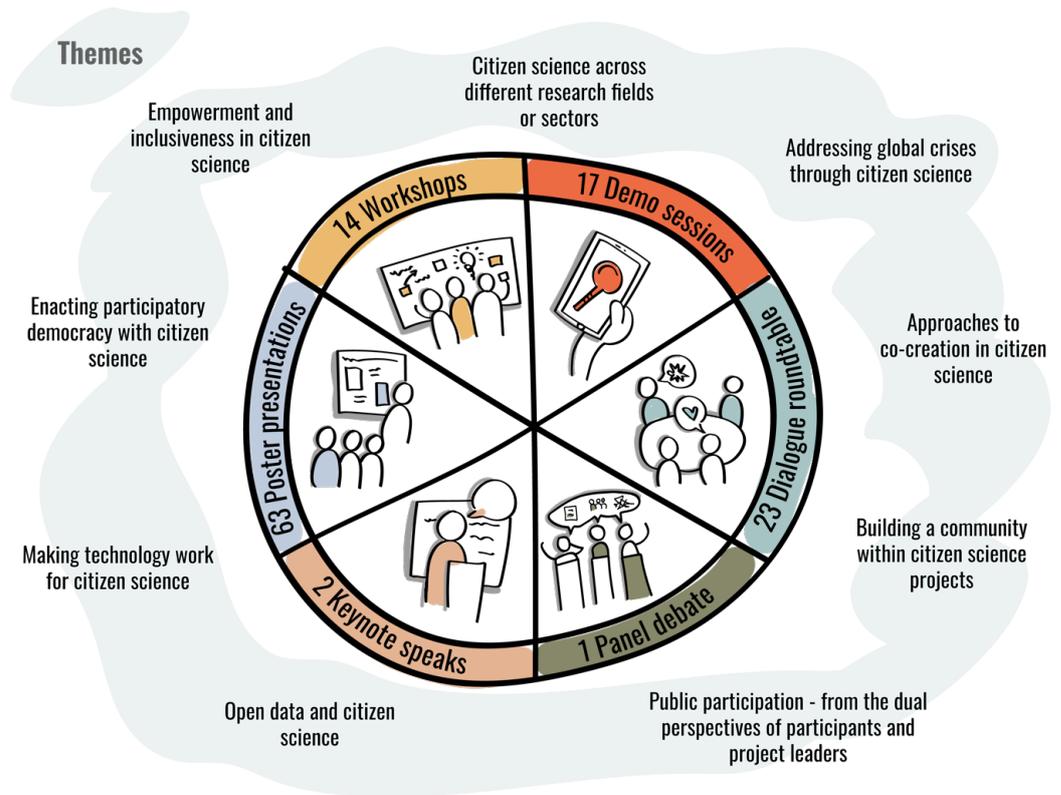
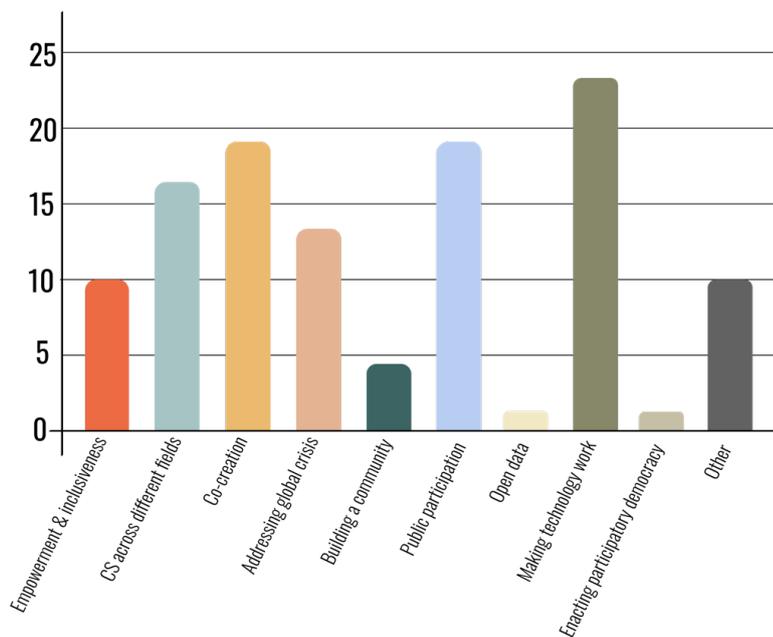


Figure 1. Overview of the conference activities.

With 120 sessions taking place over just 16 hours, conference participants had to prioritize. Figure 1 shows the conference’s main themes as defined by the organizers, but sessions also covered themes of health and sustainability. Though there was a broad range of topics, the conference had a strong representation of studies investigating technological platforms for CS, enhancing public participation, and co-creation methods for engaging citizens in science (see Figure 2). During these sessions, questions about data quality, power relations, and trust-building were discussed and negotiated.

Engaging and fostering a civil society that knows how science works and assesses it has great potential for changes and innovation, due to science’s role in helping people make sense of what is happening and enabling them to act [Haklay, 2022a]. In her conference keynote, Heidi Ballard, Faculty Director of the Center for Community and Citizen Science, UC Davis, argued that it is essential to establish communities within CS to create citizen ownership, identity and agency for the data produced. She presented the concept of Community Citizen Science. According to Ballard, engaging communities and bridging different areas in CS processes have the potential to create social capital and community science literacy. She highlighted the importance of involving young people as citizen scientists in the Learn CitSci Project [Aristeidou et al., 2021]. Doing CS in schools allow learners to identify and appropriate pathways to contribute to scientific data and act upon it, thus building local capacity, and sustaining partnerships (see Figure 3).



**Figure 2.** Division of abstracts in the conference booklet divided into the themes of the conference, excluding five cancelled abstracts (supplementary material attached to this paper).

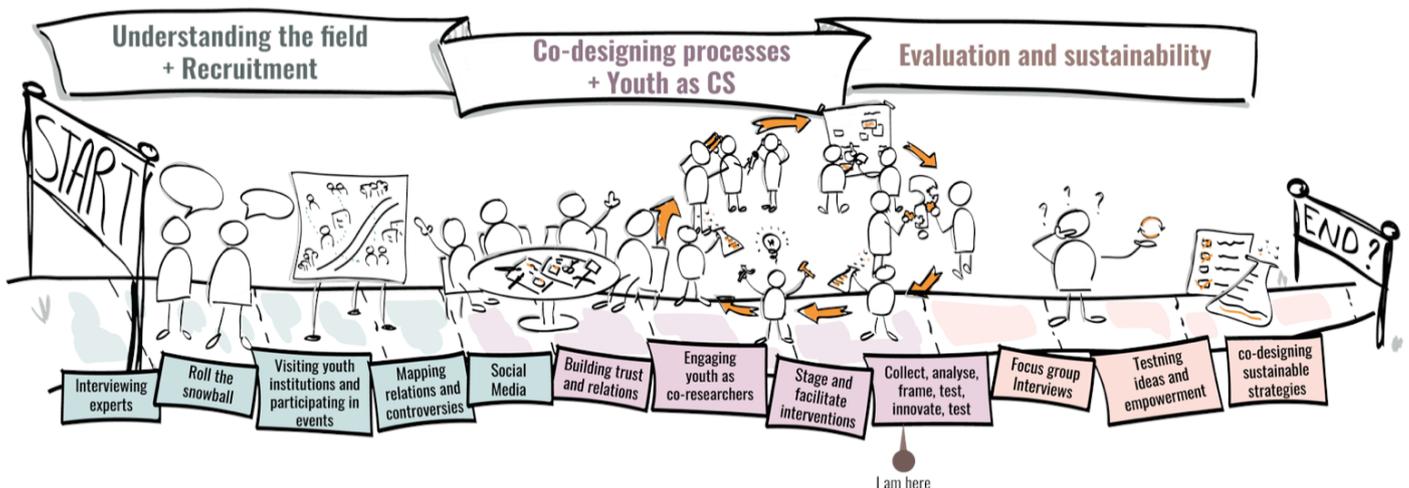


**Figure 3.** A visualization done during Heidi Ballard's Keynote, done by the artist Frits Ahlefeldt, representing the importance of connecting schools and communities through CS [Ahlefeldt, 2022].

Building on Ballard’s arguments on community citizen science, a panel debate brought different perspectives on communities in CS to the discussion. Moderated by Rikke Magnussen, Associate Professor, Aalborg University in Copenhagen, the participants Heidi Ballard, Michael Køie Poulsen, and Ida Theilade discussed the concept of community in Citizen Science. Drawing on their own experiences, the panel members discussed how communities developed and impacted knowledge processes and outcomes. The debates between the panel and the audience brought perspectives to forward questions about the potential disconnect between data collected by citizens and the demands and needs of those using the data. Members of the audience argued that we need to make sure that citizens learn the ‘science core competencies’ that we as CS practitioners want them to know and understand.

Bringing a more critical notion to the concept of CS, another keynote speaker Dick Kasperowski, Professor in Linguistics, Logic, and Theory of Science, University of Gothenburg, addressed some implicit challenges. CS, he claimed, is often used as a framework to secure democracy and participation in scientific processes, but is it democratic, or does it create new inequalities? Kasperowski spoke from a Swedish perspective, and the experiences learned through the Artportalen project [Kasperowski & Hagen, 2022]. He raised concerns about democracy, infrastructures, trust, and epistemic representations, showing that citizen science could have unintended consequences in terms of delegitimizing discourses that were not based on extensive citizen science data. Despite its claims to universality, CS data, like other forms of scientific data, showed demographic biases in terms of who produced the data. Kasperowski therefore warned: “We are creating an epistemic monoculture of what is created, reproducing inequalities or mirroring social structure.” [quoted from Haklay, 2022b]. Both keynotes and the panel session are available online at:

<https://conferences.au.dk/citsci2022/recordings-drawings-and-presentations>.

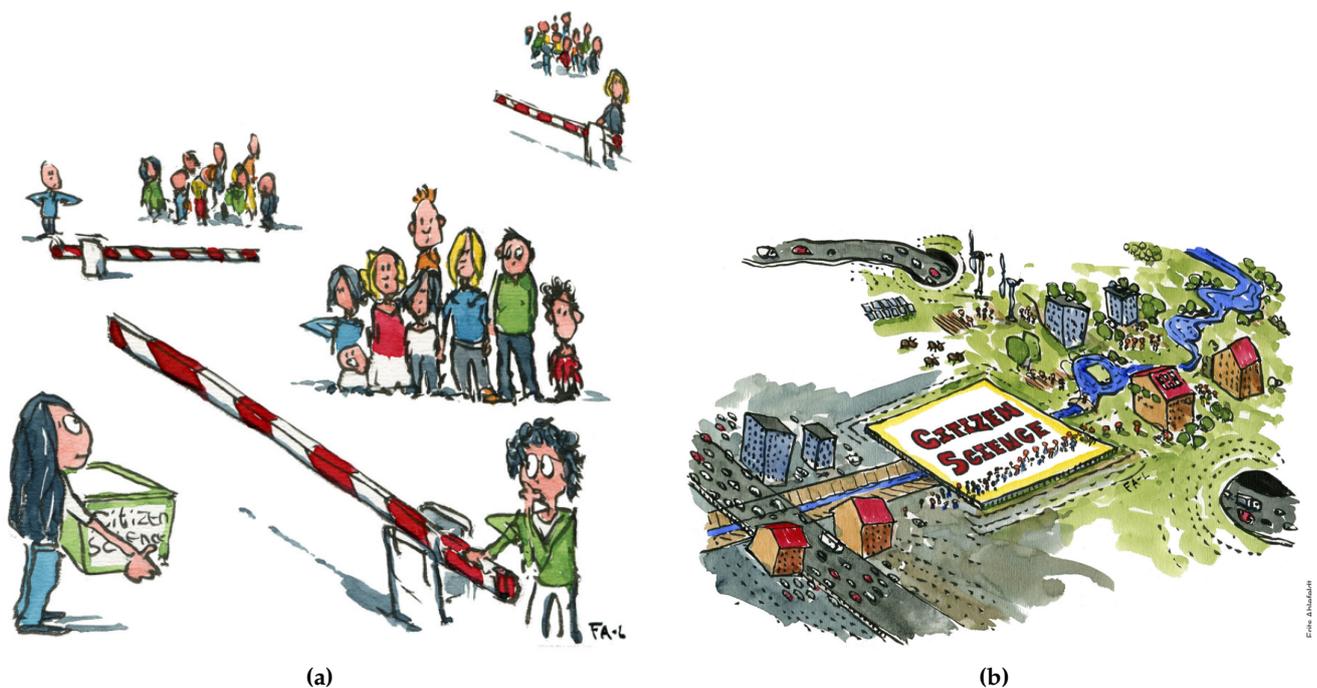


**Figure 4.** The process of my PhD study in CS: Genskab: engaging youth as citizen scientists in co-designing sustainable and youth-friendly societies. My (CitSci2022) poster about this process won one of the ‘best poster’ prizes at this conference.

## Reviewer's reflections

As my first time participating actively at a conference CitSci2022 was a great experience and networking opportunity. The extensive programme made it hard to select sessions, but there were ample opportunities for discussion. A dialogue about the ethical implications of hybrid intelligence in CS, made me reflect on my own research (see Figure 4). The session invited all participant to create a storyline about ethical issues in a case of our own choice. With new regulations around data protection and growing human compassion, we need to know what our presence as researchers brings to a community and how we treat and present the citizen scientists. In my PhD study, I work on empowering youth through citizen social science, making it crucial for me to think about which data I collect and which traces I leave as a researcher.

I hope that future CS conferences will consider the challenges of power relations, building trust, and avoiding inequalities, and how to negotiate these in order to support more democratic citizen science projects in the broader community. As an early career researcher with a design engineering background, I feel there is a need for more creativity within the field of CS. Researchers seem stocked in developing apps and using citizens to collect data. I believe that citizens can contribute with much more than geolocating biological matters.



**Figure 5.** Fritz Ahlefeldt covered the conference as a visual journalist. His two drawings shown here depicts the importance of involving gatekeepers in CS (left) and the empowerment of communities employing CS [Ahlefeldt, 2022].

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