German-Dutch dialogue on the future of libraries

Libraries and Citizen Science - What is the benefit?
With Elisa Hermann and Irene Haslinger
Moderator: Barbara Lison

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Citizen Science
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The Netherlands
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1. What is Citizen Science?
2. Why support and encourage Citizen Science?
3. Citizen Science at TU Delft, University of Technology
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Citizen science is scientific research in collaboration with citizens.
Doe mee met de Nationale Tuinvogeltelling

Wat ZOEMT er in je achtuyn?
Doe mee met de Nationale Bijentelling

ZOEKKAART FOSSIELEN
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**Why Citizen Science?**

- To collect (large amounts of) data that can’t be collected without the citizens ([SmartPhones4water](#));
- To analyze (large amounts of) data, e.g. unravel complex structures by means of games, thus contributing to molecular design ([Eterna](#));
- To empower citizens, by bringing science to people while increasing trust in science (“post-truth era, alternative facts”)
• The problem definition can come from both citizens and researchers.

• CS projects generate new knowledge or understanding as any other research project by using the scientific method.

• In every research phase there must be a clear attribution of roles between the participants.

• All participants in CS projects benefit from participation, and are acknowledged for it.

• All participants benefit from the results of a CS project (open science).

• Communication and tools interfaces have to be made taylor-made.

• CS projects are evaluated for - their scientific output and data quality as any other research project, - the participant experience and - wider societal or policy impact.

*derived from the 10 principles of Citizen Science published by ECSA*
Fig. 4.1 Levels of participation in citizen science (Haklay 2013)

- **Level 1 'Crowdsourcing'**
  - Citizens as sensors
  - Volunteered computing

- **Level 2 'Distributed Intelligence'**
  - Citizens as basic interpreters
  - Volunteered thinking

- **Level 3 'Participatory science'**
  - Participation in problem definition and data collection

- **Level 4 'Extreme Citizen Science'**
  - Collaborative science – problem definition, data collection and analysis
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Role for the library?

• Accessibility to information and knowledge

• Place in society: easily accessible and approachable (both public libraries & university libraries)

• Examples: geo-referencing in central hall, collection of old smart phones, corona field lab
Quality assurance

- Responsibility of researcher

- Facilitating CS becomes part of research design

- Levels of CS: to be able to perform a specific task, or have specific expertise?

- Library can help facilitate the process (legal aspects, integrity, data collection, hosting public event with researchers and participants etc.)
Why incorporate citizen science into the TU Delft Open Science Programme?

• Both the EU and UNESCO are working on implementing Citizen Science as part of Open Science

• Citizen Science enables Open Science and requires Open Science

• Citizen Science calls upon all projects and cross-cutting themes from the Open Science programme

• Citizen Science provides added value to the Open Science programme, namely the interaction with society (“Impact for a better society”)
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**Structure of the Open Science Programme**

- OPEN Education
- OPEN Access
- OPEN Publishing
- FAIR Data
- FAIR Software
- FAIR Hardware

- Rewards and Recognition in an Open Era
- Fruitful collaboration with 3rd parties
- Skills in Open Science
- Open Science Lab
- Citizen Science
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References

• TU Delft Open Science Programme: https://www.tudelft.nl/library/tu-delft-open-science/about-the-programme


• ECSA: https://ecsa.citizen-science.net

• Eterna project: https://eternagame.org/

• Smart phones for water: https://www.tudelft.nl/library/over-de-library/tu-delft-library-presenteert/smartphones-for-water
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Thank you!

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Thank you for your participation!

This online-seminar was not recorded. The speakers‘ presentations and chat discussion will be forwarded to you.