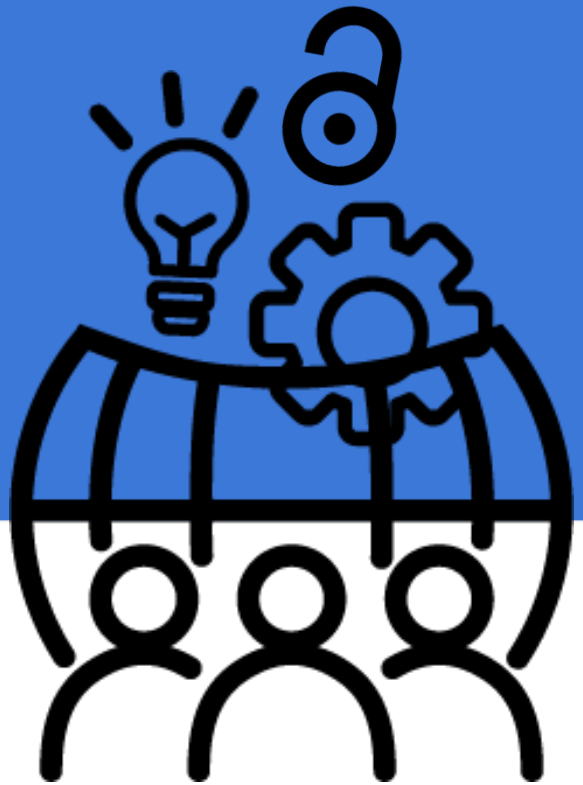
Citizen and Open Science Practices in Cultural Heritage



Analysing the Openness Scope through a Nine-Factor Typology

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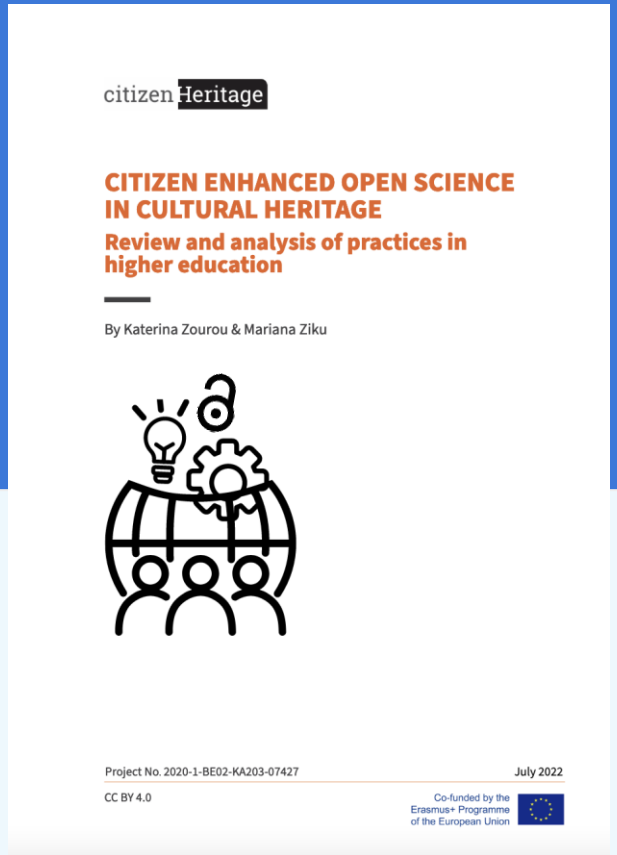
Web2Learn
Open, social learning

citizen Heritage

Co-funded by the Erasmus+ Programme of the European Union

About the study

Erasmus+ KA2 project CitizenHeritage “Citizen Science Practices in Cultural Heritage: towards a Sustainable Model in Higher Education”



Open access publication (Zourou & Ziku, 2022) https://doi.org/10.5281/zenodo.6875125

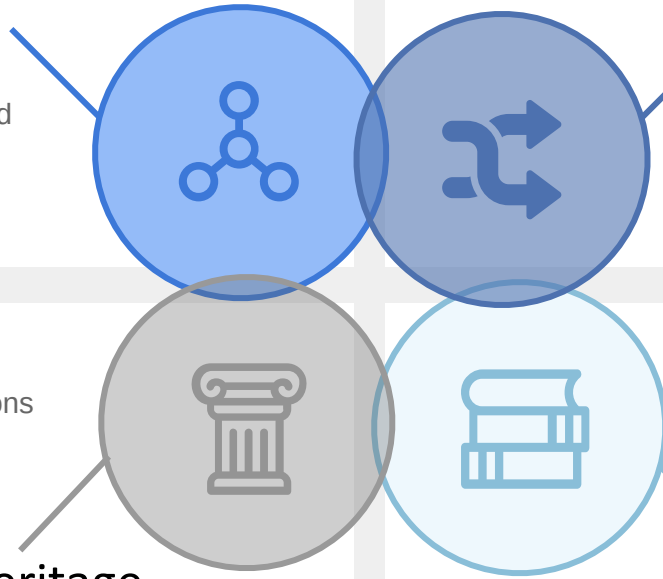
Overview

Citizen science

Public participation and collaboration in research

Openness

Open access policy, open data and metadata, FAIR data

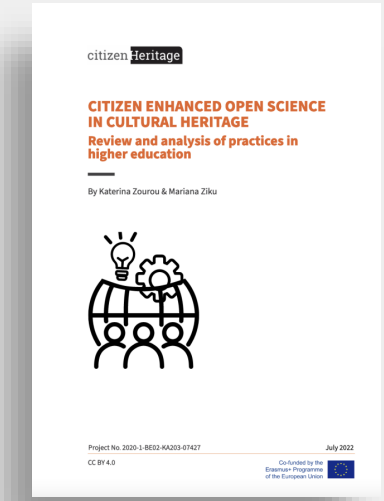


Cultural heritage

Cultural commons and digital transformation

Higher Education

Human resources, technical and material support



Citizen Science (CS): Review of Terms, Policies and Strategies

+ Open science

Open science is one of the top priorities in EU strategy for research, CS is one of the main pillars

Recognising citizens as “valid European science knowledge producers”

European Commission. (2019). Open Science, factsheet,
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CS is understood as a form of scientific research (cf. citizen humanities, citizen social science)

CS projects in the SSH are far less compared to the natural and life sciences

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+ Cultural Heritage

CS as a means of social innovation and sustainable community development

Early reference: DC-NET Green Paper (2011) on user involvement in digital heritage as a key success factor

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Scope and Methodology

Mission

Leverage citizen science practices in the cultural heritage sector making them sustainable in universities

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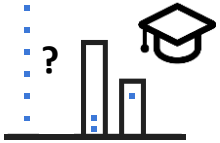
Gap



- Limited insights into citizen science projects in the cultural heritage field
- The role of Higher Education Institutions (HEIs) has not been addressed in the context of citizen science

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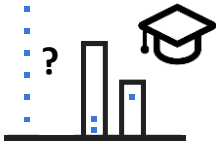

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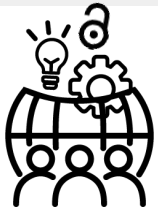

- Mapping and analysis of heritage-related citizen science projects
- Focus on assessing their openness spectrum, communicating best practices

Mapping “Openness”

9-factor typology against which the citizen science projects are analyzed

- Citizen Enhanced Open Science
- Openness-in-action framework

EU policy papers (2011, 2021; EU, 2018)

OpenGLAM principles (OKF, 2013)

FAIR data principles (Wilkinson et al., 2016)

PARTHENOS guidelines (Hollander et al., 2018)

Digital Shift manifesto (RLUK, 2020)

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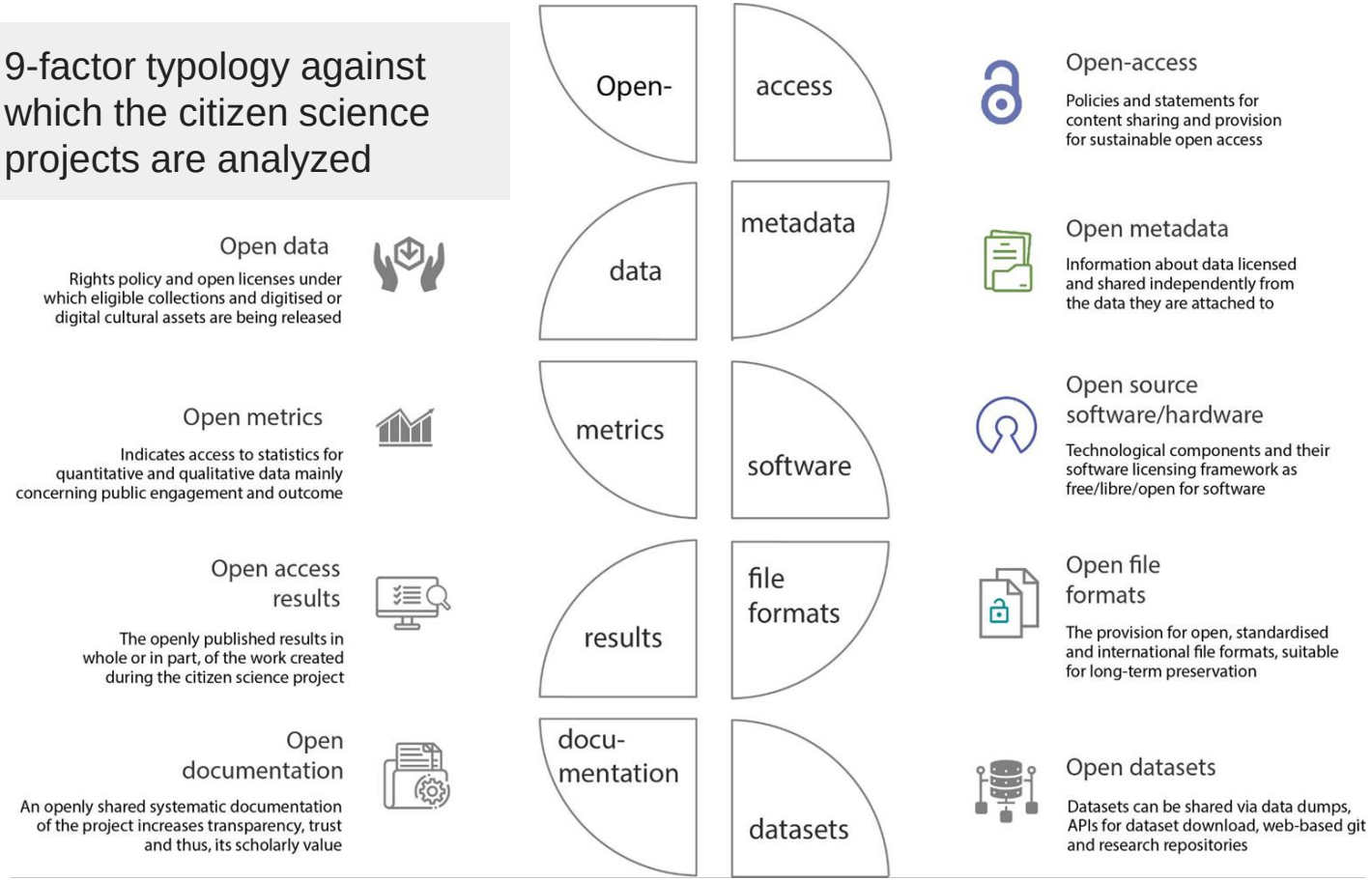

Fig. 1. Openness scope in citizen science, nine-factor typology (infographic). In Zourou & Ziku, 2022. CC BY 4.0

Selection of CS practices in Cultural Heritage

110 international CS cases

4 selection criteria:

- Scholarly research
- Higher Education involvement
- Data (re)use
- Data ownership/ethics

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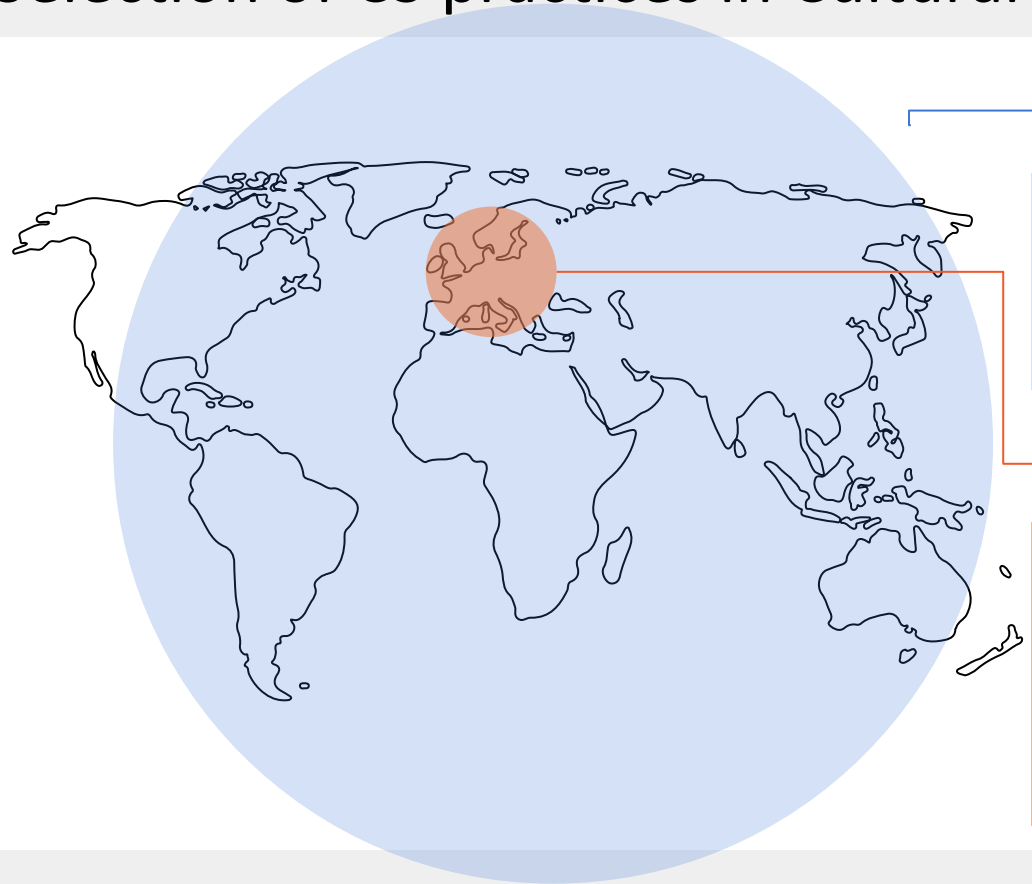

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25 Europe-based CS good practices

6 analysis criteria:
- Form of civic engagement
- **Openness scope**
- Type of participation
- Type of HE involvement
- Use of platform
- App development

List of 25 selected European-based citizen science practices

1	Living with Machines	8	Listening Experience Database	15	Heritage Quest	22	Topotheque
2	Micro-Pasts	9	Fifties in Europe Kaleidoscope	16	Dodiom	23	Accurator
3	ArcheoSITAR project	10	World Architecture Unlocked	17	Art Pluriverse: A Community Science Series	24	PAGODE
4	Transcribe Bentham	11	PHACS: Participatory Urban Projects	18	CrowdHeritage: Fashion Garment's Type	25	REACH
5	Hanse, quellen, lesen!	12	ARTigo	19	Ajapaik		
6	Transcribathon: Europeana 1914-1918	13	Memória para todos	20	SuALT: Finnish Archaeological Finds		
7	SCAPE: Scotland's Coastal Heritage at Risk	14	Meithal Dúchas.ie: Community transcription	21	WeAre#EuropeForCulture		

Methodology: Data analysis & Visualisation

Five-step data workflow

1

Data compilation

Initial set of quantifiable data

2

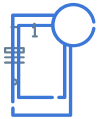
Data modelling

Create machine-readable structured data

3

Data filtering

Further mapped to bring a richer understanding



4

Parameter settings

Include attributions e.g. color scheme, shapes, sizes

5

Visualisation rendering

Use of software interface

Openness scope assessment of 25 CS initiatives

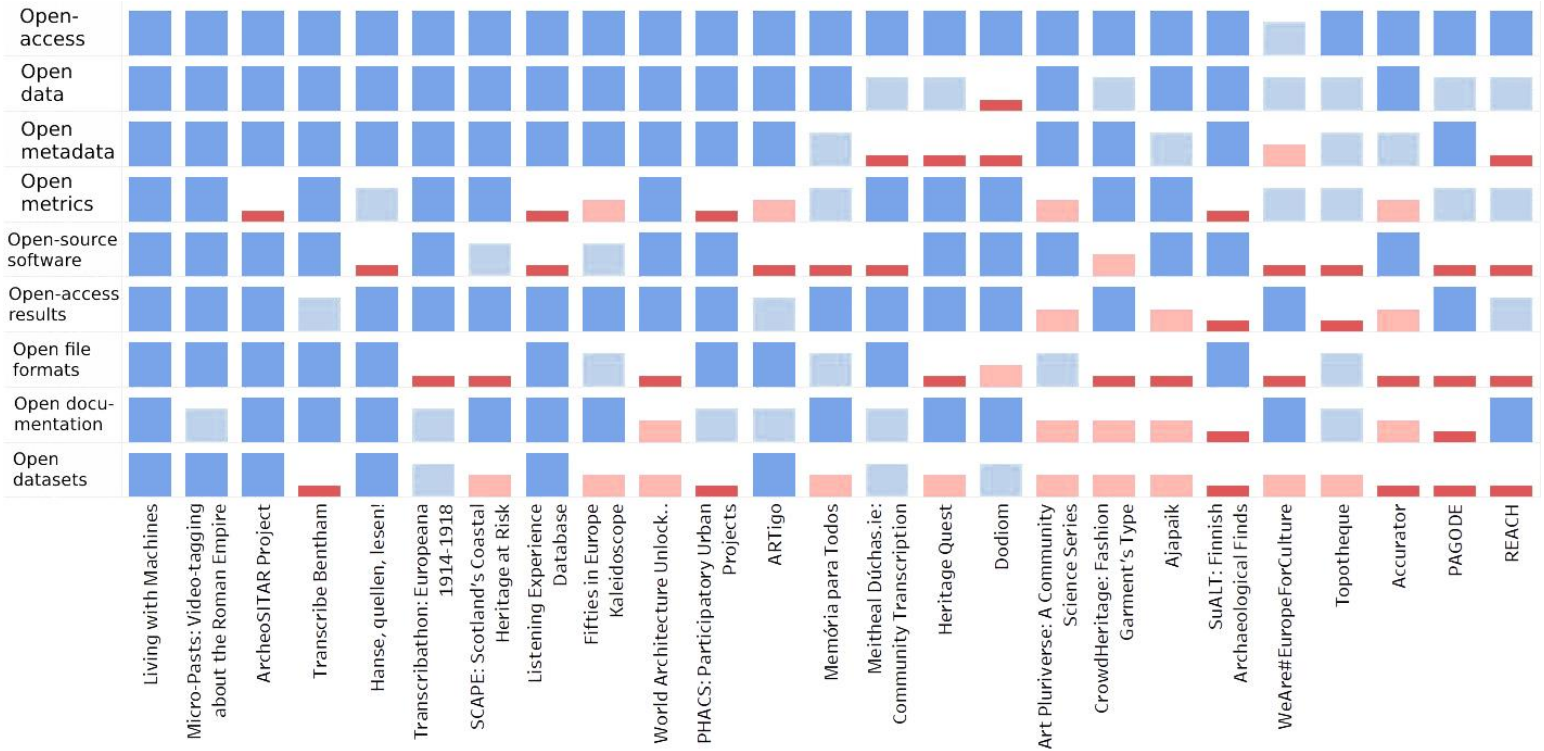


Fig. 2. Assessment of the openness scope against the 9-factor typology taking four values, "good" (blue), "partly good" (light blue), "not clear" (pink), "weak" (red). In Zourou & Ziku, 2022. CC BY 4.0

Openness scope assessment of 25 CS initiatives

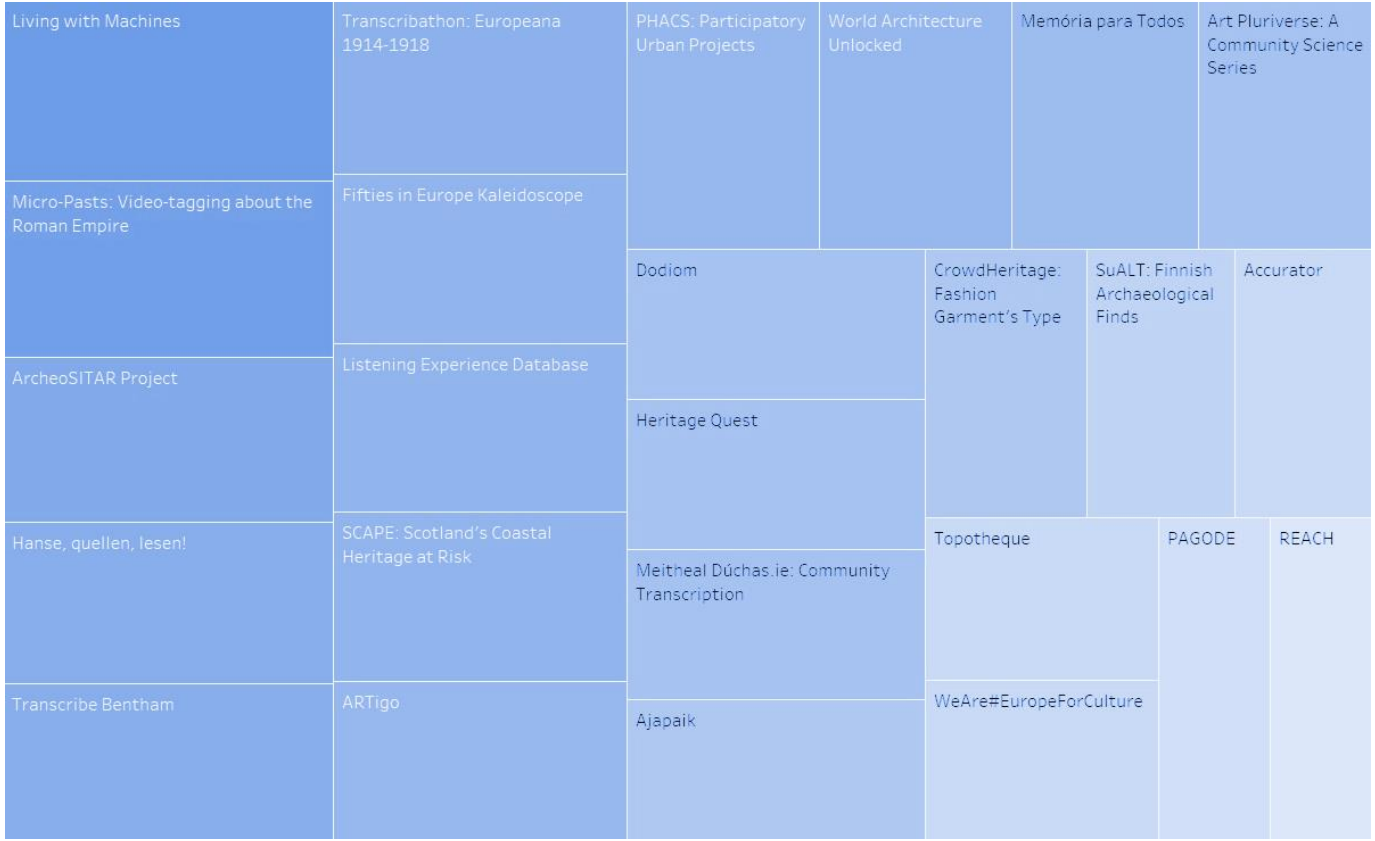


Fig. 3. Treemap view of the 25 selected citizen science practices, sorted according to their openness scope based on the 9-factor typology. In Zourou & Ziku, 2022. CC BY 4.0

FAIR data assessment of 25 CS initiatives

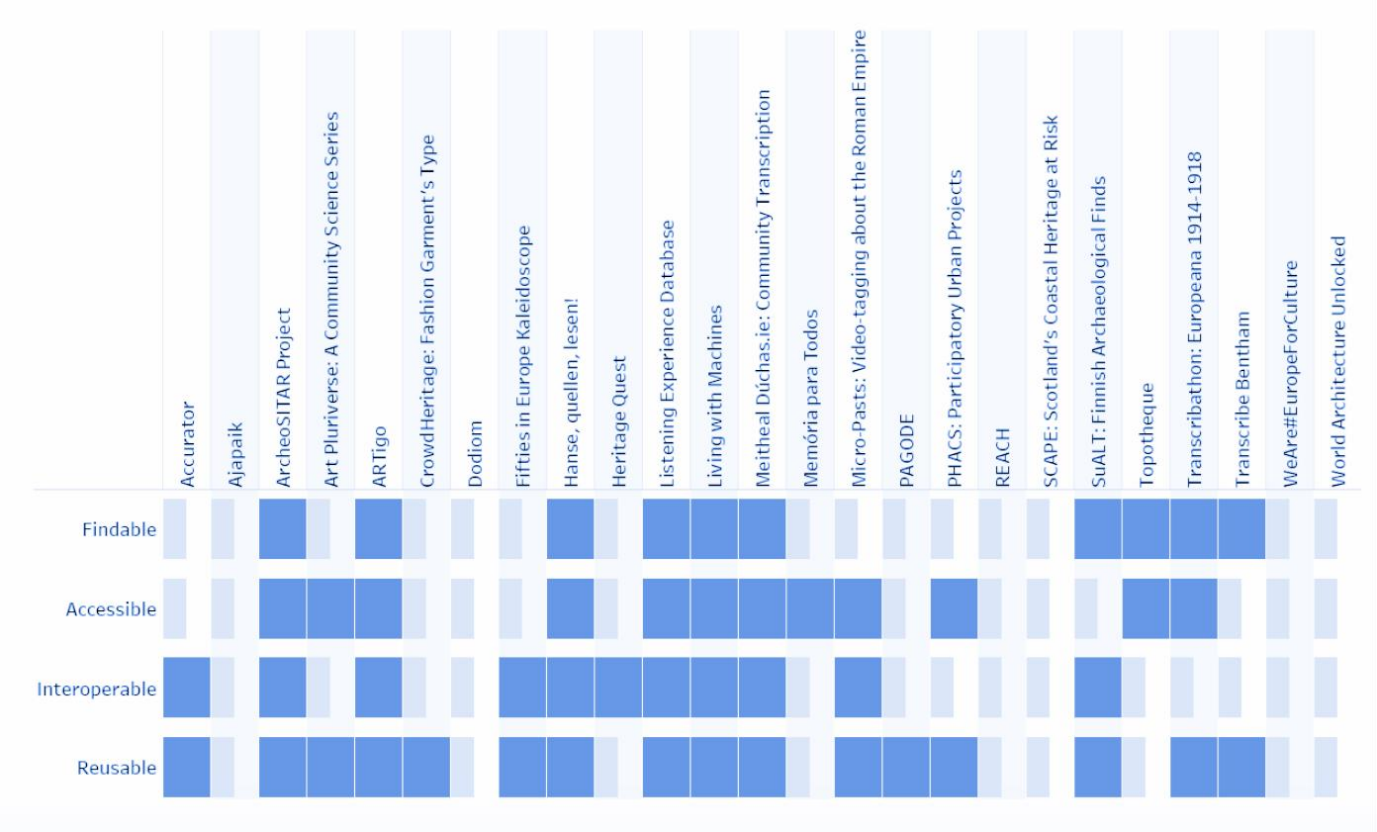
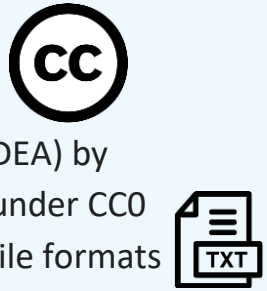


Fig. 4. Assessment of the FAIR dimension taking two values, "yes" (blue), "no/not clear" (light blue). In Zourou & Ziku, 2022. CC BY 4.0

Synthesis of findings

Insights

- **Clear communication of reusability of (meta)data**: Adopting widely accepted open licences
- **Enabling open metadata at large:** Data Exchange Agreement (DEA) by Europeana, all metadata entering the platform to be released under CC0
- **Well-defined accessibility for CS data:** Providing data in open file formats and standardised schemas (e.g. XML, TXT)
- **Providing long-term accessibility of data:** Use of trusted repositories/research infrastructures
- **Applying interoperability:** Providing machine-actionable APIs, usage of widespread vocabularies, cleaned versions of datasets
- **Enhancing findability:** Providing citation for the data through a DOI



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Add technical information to open documentation

Can include graph representations of the platform's architecture/application/data model and a lay description

Future directions - Challenges

Challenges at the intersection of open and citizen science in the interdisciplinary cultural heritage field in:

- **Policy:** Reinforcement of open data management

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- **Quality:** Evaluation through systematic, data-driven open metrics, adoption of innovative workflows
- **Ethics:** Need for more ethical project design methods in public participatory research settings, people-oriented, ethical governance of data

Thank you!
Questions?

Web2Learn
Open, social learning

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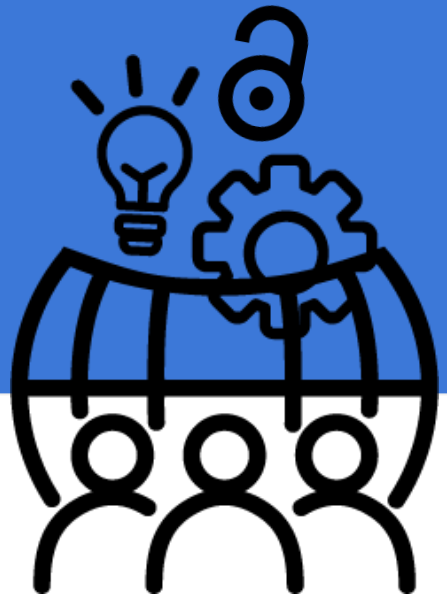

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