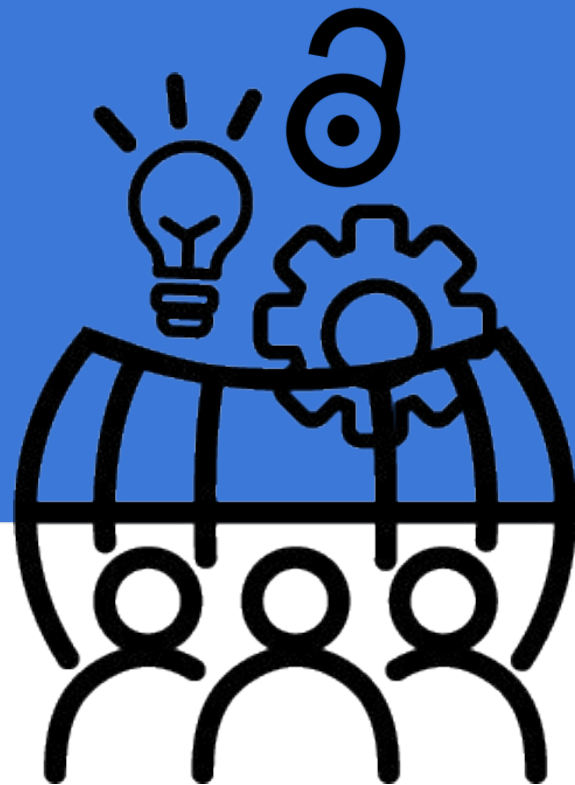


Citizen and Open Science Practices in Cultural Heritage

Analysing the Openness Scope through a Nine-Factor Typology

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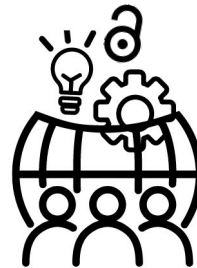
About the study

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

citizenHeritage

CITIZEN ENHANCED OPEN SCIENCE IN CULTURAL HERITAGE Review and analysis of practices in higher education

By Katerina Zourou & Mariana Ziku



Project No. 2020-1-BE02-KA203-07427

July 2022

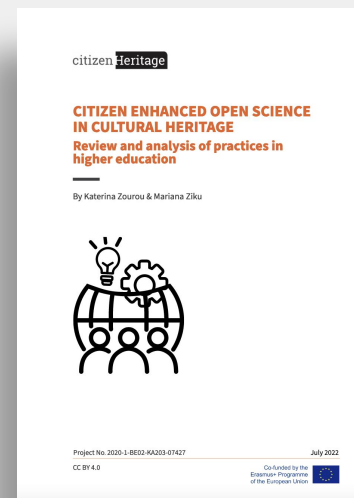
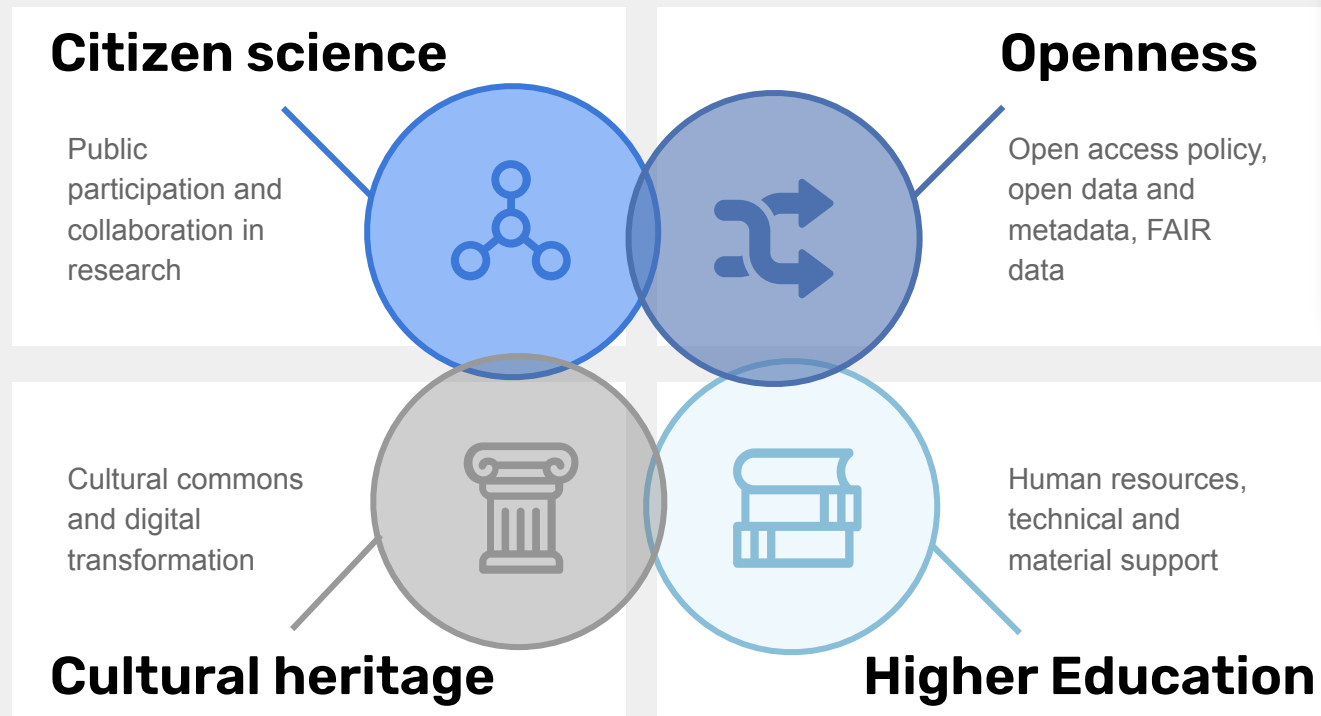
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Open access publication (Zourou & Ziku, 2022)
<https://doi.org/10.5281/zenodo.6875125>

Overview





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”

+ Social Sciences and Humanities

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

+ 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

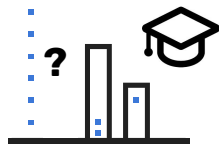


Scope and Methodology

Mission

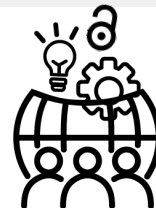
Leverage citizen science practices in the cultural heritage sector making them sustainable in universities

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

Scope



- 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)

Mapping "Openness"

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

Open data
 Rights policy and open licenses under which eligible collections and digitised or digital cultural assets are being released



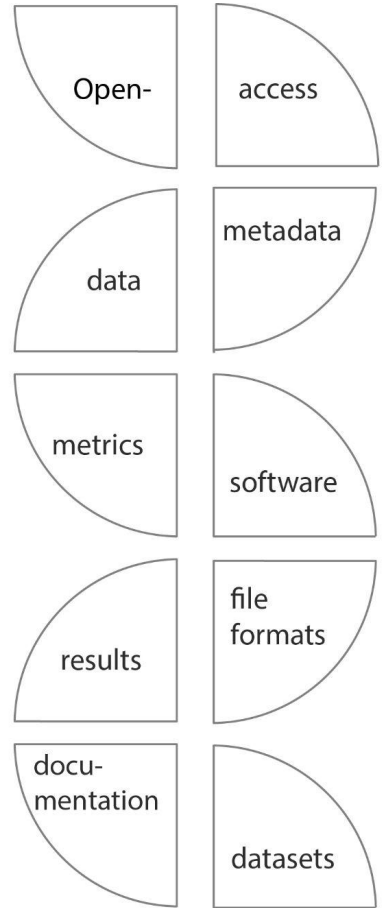
Open metrics
 Indicates access to statistics for quantitative and qualitative data mainly concerning public engagement and outcome



Open access results
 The openly published results in whole or in part, of the work created during the citizen science project



Open documentation
 An openly shared systematic documentation of the project increases transparency, trust and thus, its scholarly value



Open-access
 Policies and statements for content sharing and provision for sustainable open access



Open metadata
 Information about data licensed and shared independently from the data they are attached to



Open source software/hardware
 Technological components and their software licensing framework as free/libre/open for software



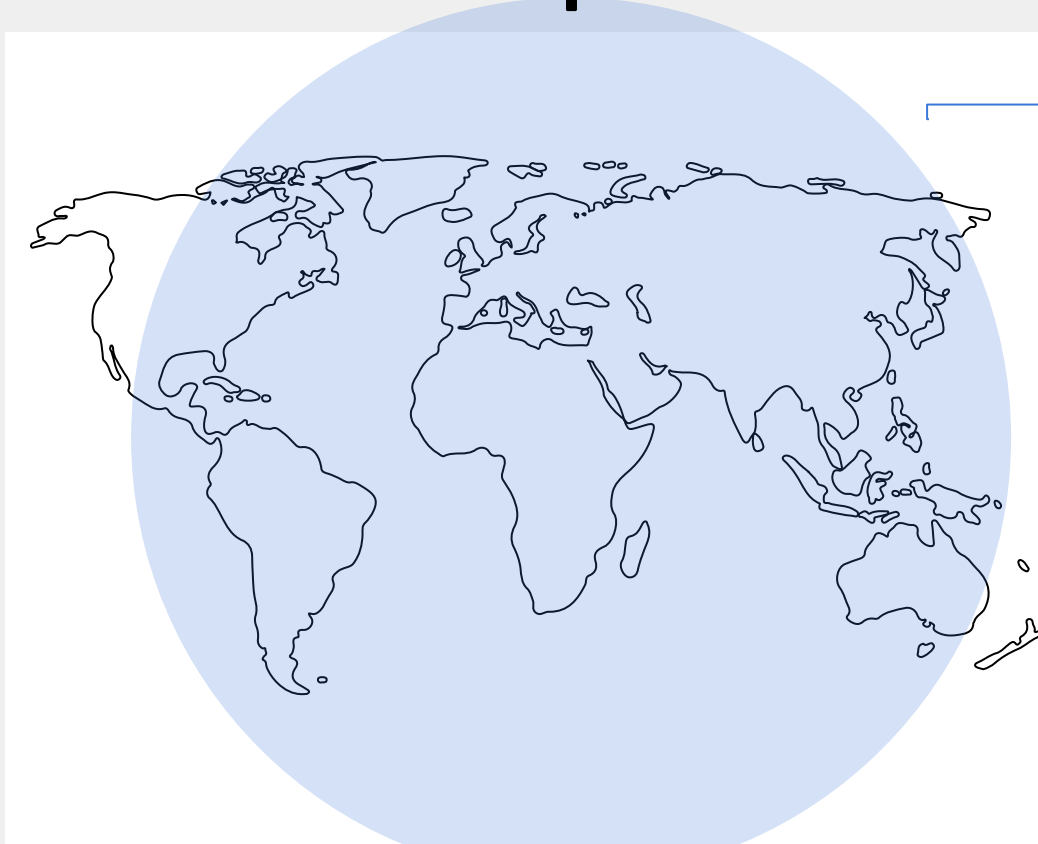
Open file formats
 The provision for open, standardised and international file formats, suitable for long-term preservation



Open datasets
 Datasets can be shared via data dumps, APIs for dataset download, web-based git and research repositories

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

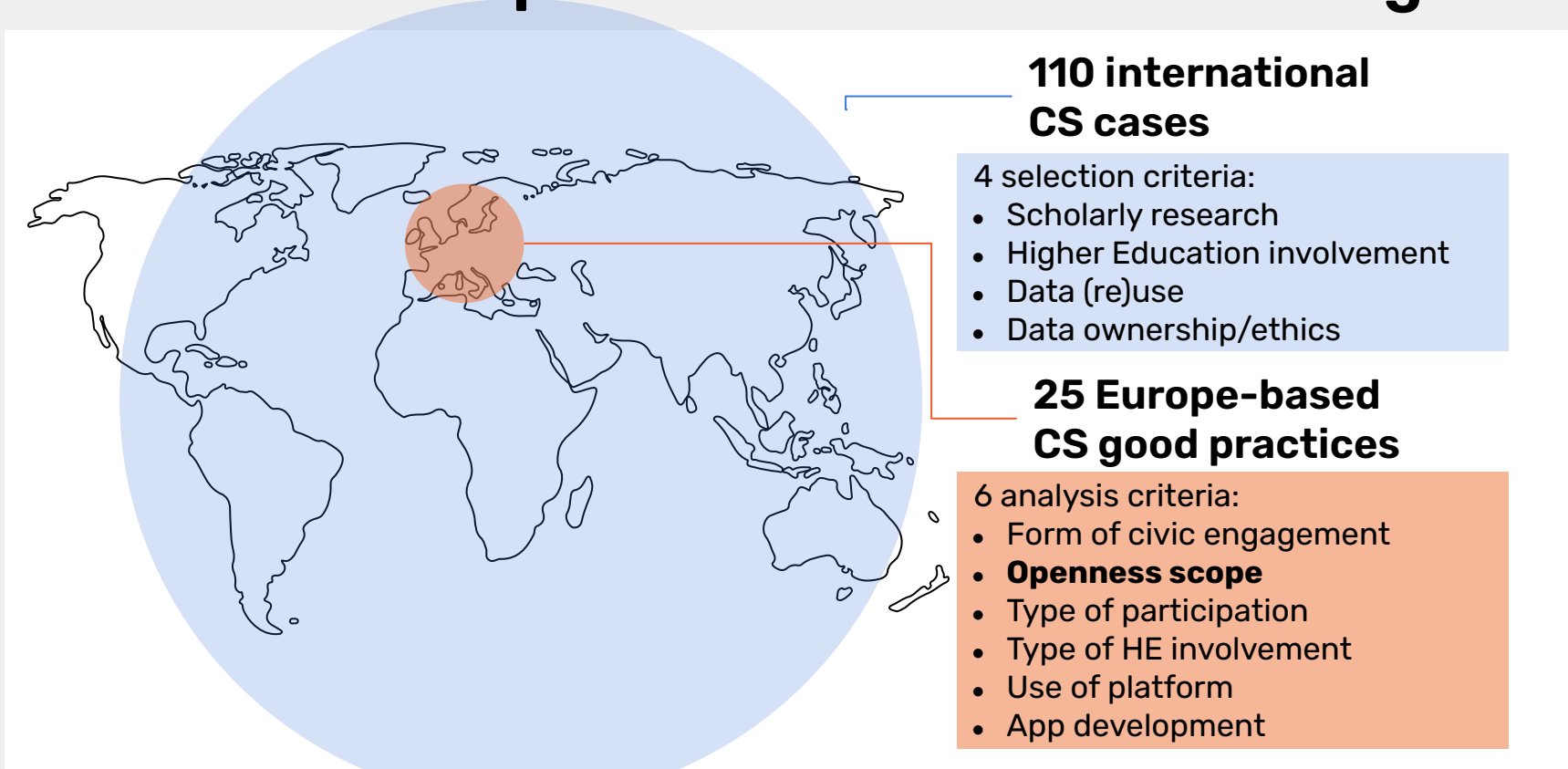


110 international CS cases

4 selection criteria:

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

Selection of CS practices in Cultural Heritage



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



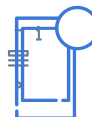
1



2



3



4



5

**Data
compilation**

Initial set of
quantifiable data

**Data
modelling**

Create
machine-readable
structured data

**Data
filtering**

Further mapped
to bring a richer
understanding

**Parameter
settings**

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

**Visualisation
rendering**

Use of software
interface

Openness scope assessment of 25 CS initiatives

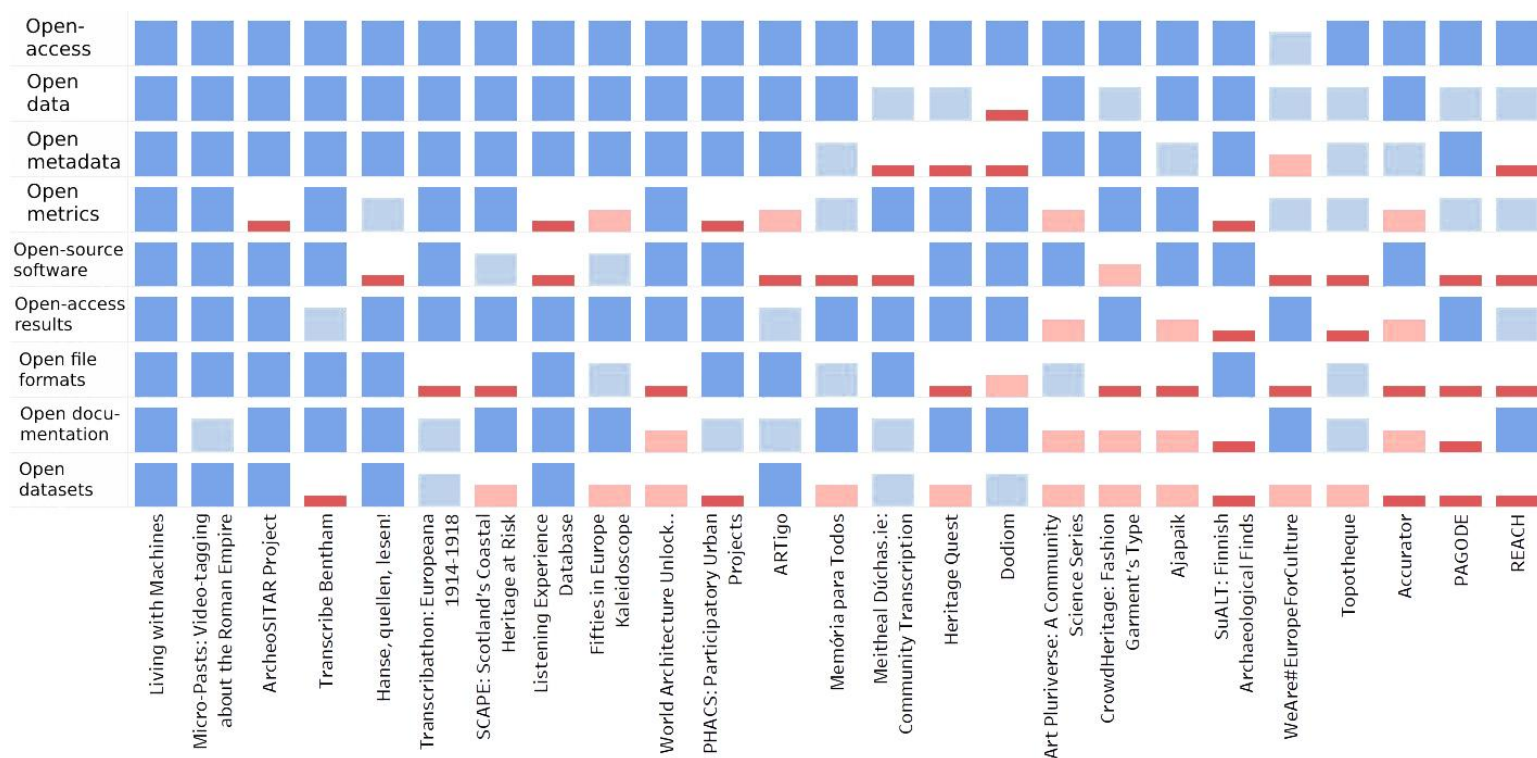


Fig. 2. Assessment of the openness scope against the 9-factor typology taking four values, “good” (blue), “partly good” (light blue), “not clear” (pink), “weak” (red). In Zourou & Ziku, 2022. CC BY 4.0

Openness scope assessment of 25 CS initiatives

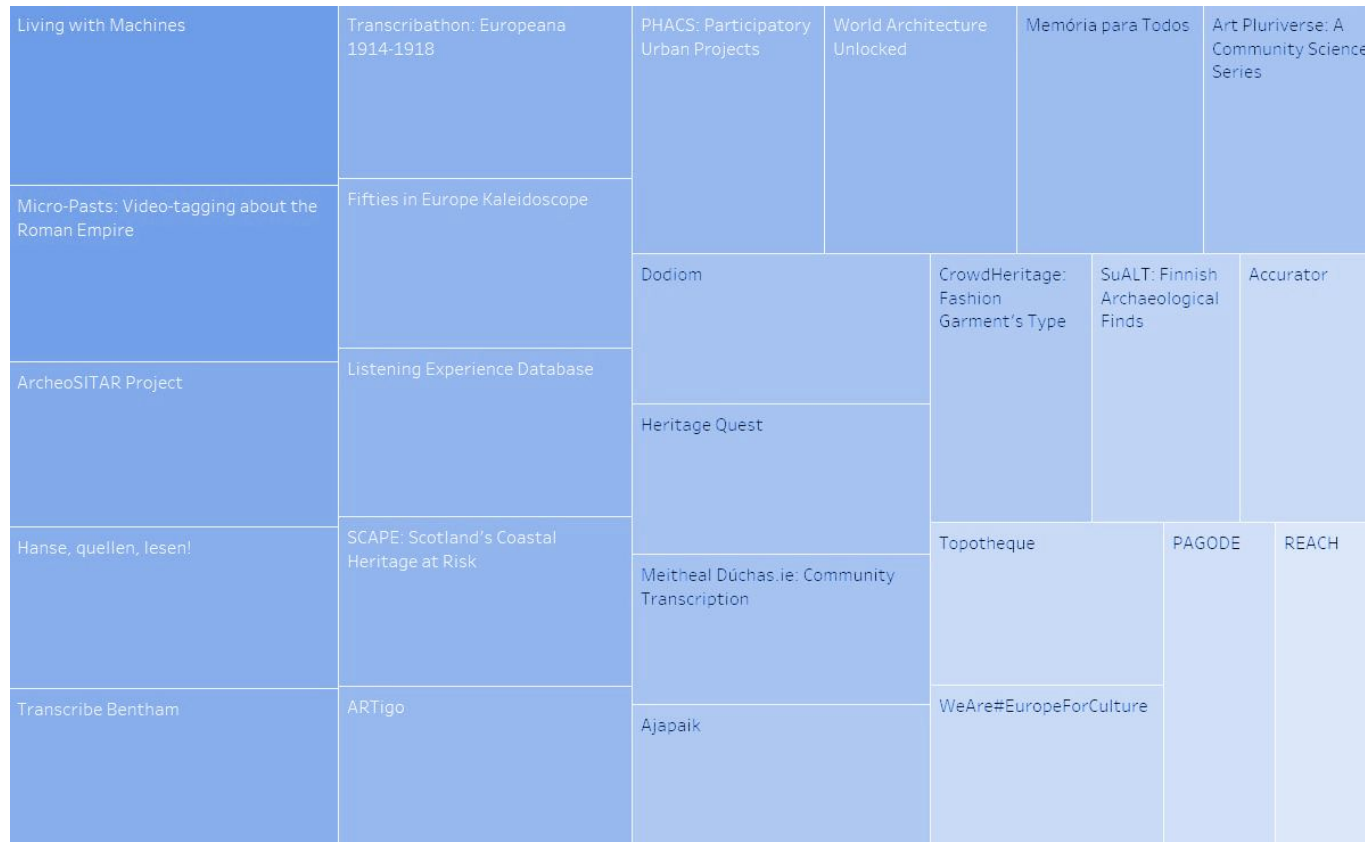


Fig. 3. Treemap view of the 25 selected citizen science practices, sorted according to their openness scope based on the 9-factor typology. In Zourou & Ziku, 2022. CC BY 4.0

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

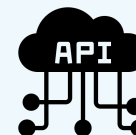
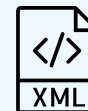
Synthesis of findings



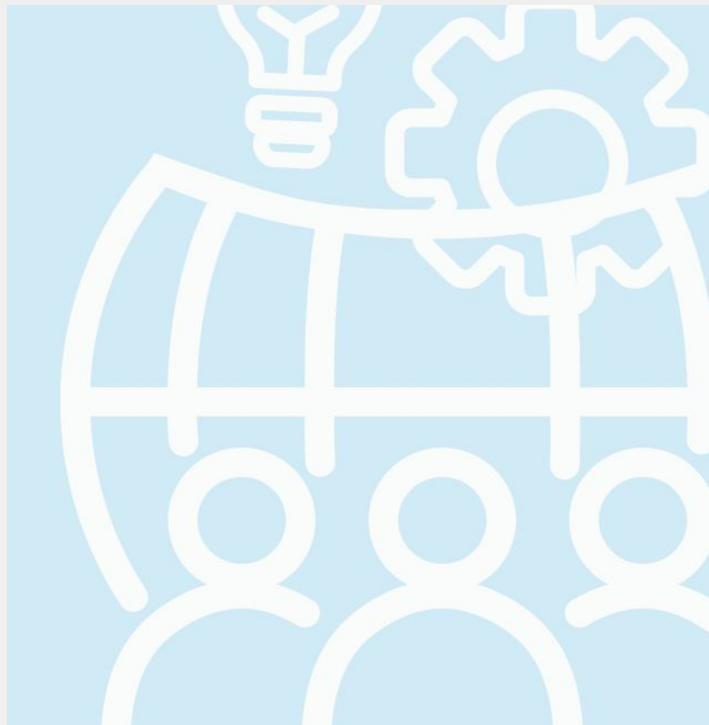
Insights



- **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



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
- **Standards:** Adopting data standards and protocols, formalising a citizen science data standard for usage in the SSH, creation of common global and transdisciplinary set of data models (PPSR Core)
- **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

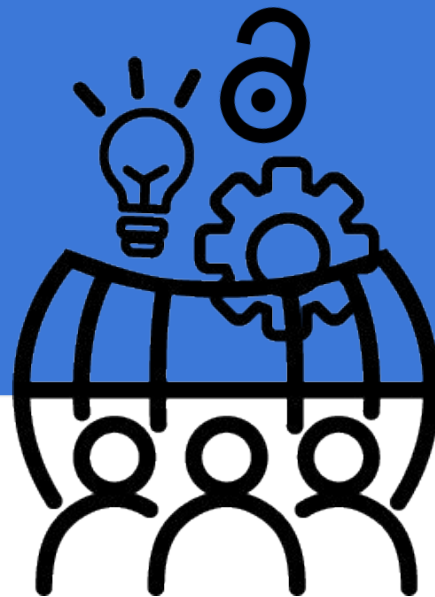
Thank you! Questions?

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Open, social learning

<https://web2learn.eu>



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