citizen Heritage

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Report on Citizen Science methodologies and implementation strategies

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Executive Summary

This report presents the final results of the research around the development of a methodological strategy for the implementation and setting up of Citizen Science initiatives in the Cultural Heritage sector. It starts by identifying the role of Citizen Science in the context of Heritage studies in Higher Education Institutions and the need for an approach oriented towards the recognition of contributors' value. It is in fact essential to raise awareness of the difference between crowdsourcing and Citizen Science methodologies and bring Cultural Heritage Institutions towards the adoption of citizens-oriented - rather than crowds-oriented -methods. These needs arise as a consequence of the growing interaction and contribution of the public to digital cultural collections (e.g. involvement with document transcription, cataloging, metadata enrichment, etc.) and expectations about the quality of the contribution's experience. Therefore, it is crucial to create an environment where the public is not merely seen as a category that can be exploited for data gathering and data production but as a group that needs recognition.

The approach presented in this report includes the following points:

- The development of user requirements & guidelines for CHIs organising in Citizen Science initiatives or who want to get involved in a Citizen Science initiative;
- The development of a model for Citizen Science activities creation with the objective of guiding CHIs in implementing actions that give value to citizen's perspectives;
- Providing CHIs with valuable feedback on planning -and assessing the impact of their Citizen Science initiatives.

These approaches have supported the development of a methodology and a self-assessment checklist addressed to cultural institutions that are developing a Citizen Science action. By going through the self-assessment checklist CHI can assess the level of readiness of their Citizen Science initiative.

The final part of the report is dedicated to the outputs of the analysis of a series of conversations with professionals in the Cultural Heritage and Higher Education sector around user engagement and participation practices in the cultural heritage and education fields and concludes with a call for more cooperation between the two environments.

1. Citizen Science in Heritage Studies

Heritage studies is a wide and diversified field, touching upon many different disciplines and methodologies. It can range from theoretical studies on the concept of heritage, its societal definition, and legal implementation, to practical studies involving how to collect, preserve and display heritage objects, or the management of heritage institutions. Research can originate in universities and research centers, or at heritage institutions themselves, serving for content-oriented research in disciplines such as (art) history, archaeology, ethnography, or other branches of the humanities (Sørensen et al., 2009). Especially in the last decade, Cultural Heritage Institutions opened a high number of their collections to the public by publication of digital collections and datasets in online environments such as proprietary websites, European platforms like Europeana.eu and on cloud and other e-infrastructures for research in humanities and science. This led not only to an increase in the traffic rates of users accessing digital collections but also to the growing interest of GLAM institutions in finding new ways to digitally involve citizens in their activities and to increase their long-term interactions with their collections (Ridge et al., 2021).

Although the adoption of crowdsourcing and/or Citizen Science practices by heritage institutions for the gathering, and publication of heritage-related data can be dated back to much before the emergence of the digital turn (Owens, 2013), these approaches started only recently being systematically assimilated by cultural institutions becoming gradually recognized not uniquely as experimental activities but also as practices with a proven scientific value and acquiring, therefore, institutional priority (Ridge et al., 2021). As a consequence, the user's interaction with digital collections has increased, and the public is often asked to engage with the collections and to collaborate on their transcription, cataloging, metadata enrichment, or co-creation activities. However, as more cultural institutions ask the public to undertake these sorts of tasks, expectations from the public rise about the quality of their experience and about the final use of the results. For this reason, it is nowadays crucial for Cultural Heritage Institutions to create more benefits for the organizers and for the participants and to recognize these collaborations/processes not merely as a productive, contributional framework but also as a form of public engagement and knowledge sharing (Ridge et al., 2021).

Research in the Civic Epistemologies project (2014-2015) indicated that the main motivation to include Citizen Science in Cultural Heritage research is to enhance user engagement, rather than other possible -more utilitarian- benefits such as reducing staff time or simply gathering data (Dobreva, Jennings, and Devreni-Koutsouki 2015). In this context, it is important to make a distinction between situations where the citizen is actually the **object** of study, for instance when their testimony is exemplary of ways of life, lived

experience, or intangible heritage that researchers want to describe, and situations where the citizen is expected to **contribute** to the research activities.

Fig. 1. Civic engagement in CS projects. Ziku, M. & Zourou, K. 2021. "Citizen enhanced open science in the cultural heritage sector". Open Knowledge Belgium online conference, March 17, 2021; Bonnie et al., 2009

The first situation is often the case in oral history. In fact, the citizen is not really participating in the research but is rather the object of the research. In the first case, the participants need to be recognized in their dignity, privacy, and identity as people being observed. Their self-assessment and judgments are recorded and described but are separate from the assumptions, hypotheses, theses, and conclusions of the research. The full responsibility for the latter resides with the researcher. In the second case, the participants need to be recognized as (co-)authors, and agreements need to be made and clarified on to what extent they recognize themselves in the research goals, hypotheses, and conclusions.

2. Enhancing Citizen Science Participation in Cultural Heritage

The most obvious link between scientific research and heritage institutions is the gathering, preparation, and publication of heritage collection data. However, both the overview survey made by CitizenHeritage and the report on Crowdsourcing practices produced by the Europeana Common Culture project (Davies

2020) evidenced a **limited understanding** of the possibilities of citizen participation, as most methodologies including citizen participation involve crowdsourcing of data, be it in the form of collecting sources, identifying collection objects, making annotations, enhancing metadata, participating in storytelling, and curation or co-creation of exhibitions. For this reason, a much deeper and clearer understanding of what Citizen Science can mean to the Heritage sector both from a scientific and participatory/community-building point of view - and how it can be distinguished from the general notion of crowdsourcing is needed.

Several critical studies have in fact pointed out the difference in terms of scientific validation concerning Citizen Science and crowdsourcing approaches, especially when recognition of citizen perspectives and of the value of their contributions is considered (Shanley et al. 2019). Prevalent features include the conferring of more agency and legitimacy to participants within Citizen Science activities as compared to crowdsourcing ones, and providing participants with more (ethical) means in processes such as decision-making and social action, especially when underrepresented voices (Seltzer & Mahmoudi 2012) and minoritised communities are involved.

In addition, Citizen Science outcomes are integrated more efficiently into the knowledge commons (OCSDnet 2017) and comply with the open science principles (Dörler & Heigl 2019, ECSA 2015), in contrast to crowdsourcing results that may not have an open science orientation or any scientific outcomes in general. Recognising that Citizen Science, crowdsourcing and other heritage science or humanities-related terms (such as scholarly crowdsourcing or citizen humanities) are actively evolving fields, we argue that one of the convergence points for empowering citizens and consolidating terminological nuances on this basis is to develop a more solid “community awareness”, i.e. sufficient information to the contributors of citizen participation projects. A study conducted within the CitizenHeritage project (Zourou & Ziku 2022) showed that not many institutions running crowdsourcing/citizen involvement activities provide clear information to the citizen contributors. The findings are based on an analysis of key indicators from the table compiled within the study gathering 110 related international case studies, in which a surprisingly large number of initiatives provide unclear or complete absence of information on key criteria such as partners involved (particularly higher education institutions), open access policy, data ownership and the extent to which the initiative conducts scientific research. There is a case to be made, and at least that is the ambition of the CitizenHeritage project, that the validity of contributions provided by citizens in scientific projects depends on the way those citizens have been correctly informed on their role, the status of their contributions, their authorship and consent. Crowdsourcing/Citizen Science projects should therefore be considered a two-side initiative, where knowledge and involvement are not only taken but also given and where the participants are empowered by contributing to an environment of joint learning, discovery, creation, and experimentation.

3. CitizenScience Methodology for Cultural Heritage: the CitizenHeritage approach

One of the goals at the basis of the CitizenHeritage project consisted in the inclusion into the Cultural Heritage domain of elements belonging to Citizen Science and the promotion of crowdsourcing initiatives revolving around citizen participation and contribution in the cultural sector.

In order to achieve these objectives we focused our research on the following strategies:

- The development of a series of **user requirements** and **guidelines** for those Cultural Heritage Institutions that are involved or are planning to get involved in a Citizen Science initiative.
- The implementation of a **methodology** for the creation of Citizen Science activities with the objectives of 1) guiding CHIs in implementing and preparing their initiative and 2) implementing an action that gives value to citizens' perspectives and recognizes the importance of their contributions.
- Providing Cultural Heritage Institutions with valuable feedback on how to assess their Citizen Science action and inform them on the different stages that constitute the planning of the initiative.

3.1 A cyclic model for developing a Citizen Science initiative

Between the end of the '90s and the beginning of the '00s, the Cornell Laboratory of Ornithology developed an updated methodology and series of guidelines for implementing Citizen Science projects (Bonney et al., 2009). This is intended to support researchers in accomplishing simultaneously several goals in their Citizen Science projects (Bonney et al., 2009). The model aims at ensuring:

1) **The research.** Posing an appropriate research question tailored to the goals of the scientific activity is critical for reaching the desired results as well as for establishing the following steps - such as the formation of the research team, or the way the data will be evaluated in the future.
2) **The recruitment and training of the participants.** Together with the elaboration of a concrete research question, these elements are of primary importance in the development of a Citizen Science initiative. In fact, it is not only essential to thoroughly identify the ideal candidates -the type of public the action should be addressed to but also to establish and ensure their training and education within the framework of the project. This element is crucial to guarantee data quality.
3) **The elaboration and dissemination of the results and the gathered material.** Depending on the initiative's goals, it is crucial to establish how the data generated in the context of the project will be

analysed, using which tools, and by whom. Also, the sustainability of the project as well as the dissemination of the results are other elements that must be taken into consideration in the initiative implementation process.

Box 1. Model for developing a citizen science project.

1. Choose a scientific question.
2. Form a scientist/educator/technologist/evaluator team.
3. Develop, test, and refine protocols, data forms, and educational support materials.
4. Recruit participants.
5. Train participants.
6. Accept, edit, and display data.
7. Analyze and interpret data.
8. Disseminate results.
9. Measure outcomes.

Fig. 2. Model for developing a Citizen Science project - Bonney et al., 2009

Despite the fact that it was mainly elaborated for the needs of scientific-oriented Citizen Science projects, the model described above might represent a valuable basis for the establishment of a Citizen Science and participation strategy in the cultural heritage sector. The steps listed in the model comprehends element (such as aspects linked to the education and recognition of the participant's effort and not uniquely their exploitation) that are essential in Citizen Science initiatives focused on participation rather than on data gathering only. However, some components of the model illustrated by Bonney still present some limitations to participation, especially in relation to projects in the citizen heritage field where motivation and interest in the topic are some of the core components of public engagement.

For this reason, we think that stages 6 and 7 mainly dedicated to the analysis, editing, and interpretation of the data, should not be entirely restricted to the research team but open to the citizens who are involved with the project. Moreover, the procedure should not be static but rather **cyclic**, where public contributions are constantly taken into consideration and continuously evaluated. Based on these observations, we elaborated an adapted procedure composed of four main components which include: the preparation of

the research activity and its running, the analysis of the results, and their publication. These elements will be analysed in detail in the next section.

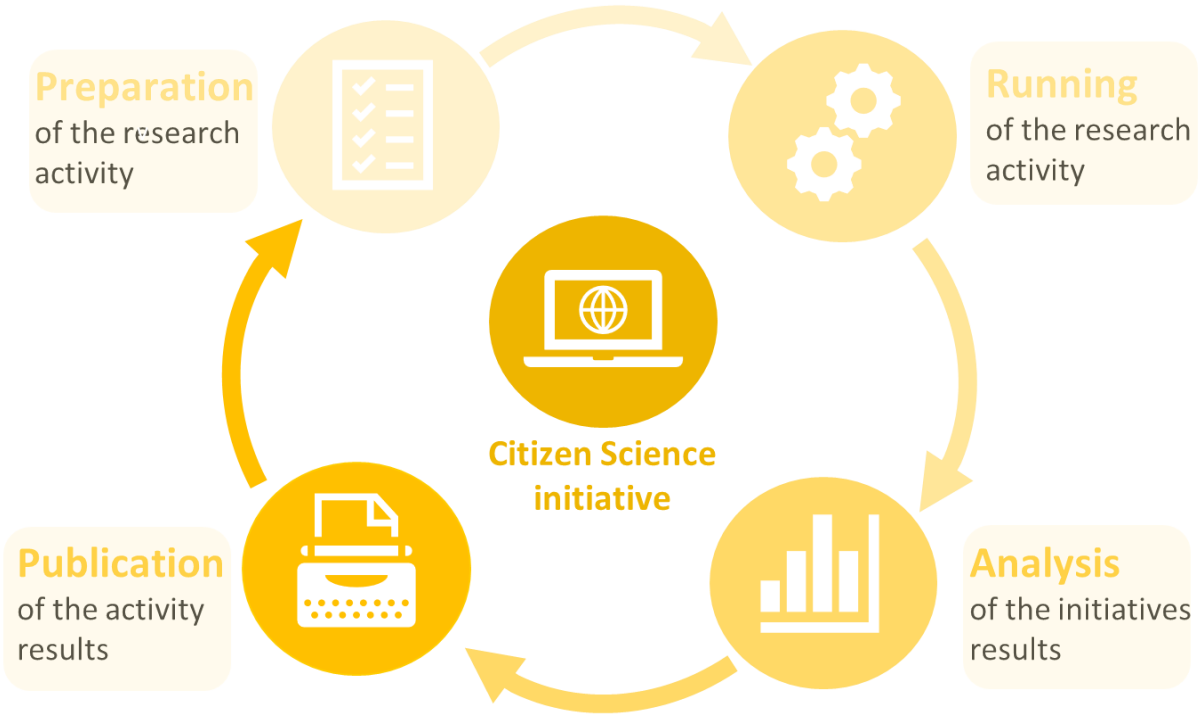

Fig. 3. Cyclic model for Citizen Science projects

Also, we developed a survey that can be completed by researchers, and a second survey that can be used as an example to query the participants.

3.2 A four-stage process for CS initiatives

As stated above, this section provides a description and explanation of the elements at the basis of the four steps that compose the cyclic model for the Citizen Science project in the Cultural Heritage sector.

3.2.1 Preparation

When preparing a research project involving citizen contributions, great care needs to be taken to conceive and describe properly what will be the expected citizen contributions. One can easily imagine the huge difference between asking members of the general public to identify different kinds of ceramics from interviewing people as key witnesses of past - possibly conflictual - events. For this, it is essential to correctly describe the role of the gathered evidence and the uses that will be made of it. From a scientific point of view, a witness account needs to be traceable to the source, while for contributions such as

validating automatic metadata enrichment that might not be necessary. From the participant's point of view, the witness might expect anonymity, and the possibility to review or even reassess their testimony, while this will normally not be the case in the enrichment example. Publishing clear documentation of the place of the participant's input in the scientific evidence chain is good practice. How much leverage the participant should have on their contribution depends on the proportional size of the contribution, and whether it is weighed as an individual source as it would be in an interview, or is averaged with other contributions, as would be the case in a survey.

➔ **Selecting participants**

While many CH institutions run anonymous surveys with voluntary participation, this might not be sufficient if the gathered data are to be used as scientific evidence. If one wants to make statements about the audience that the participant sample is supposed to represent, one must be able to document and argue for the selection criteria used to identify participants. But from a qualitative researcher's point of view, It is even more important that the right profiles of users are reached.

➔ **Determining the profiles**

For this, a good and proven methodology is to develop personae who represent the targeted audiences.

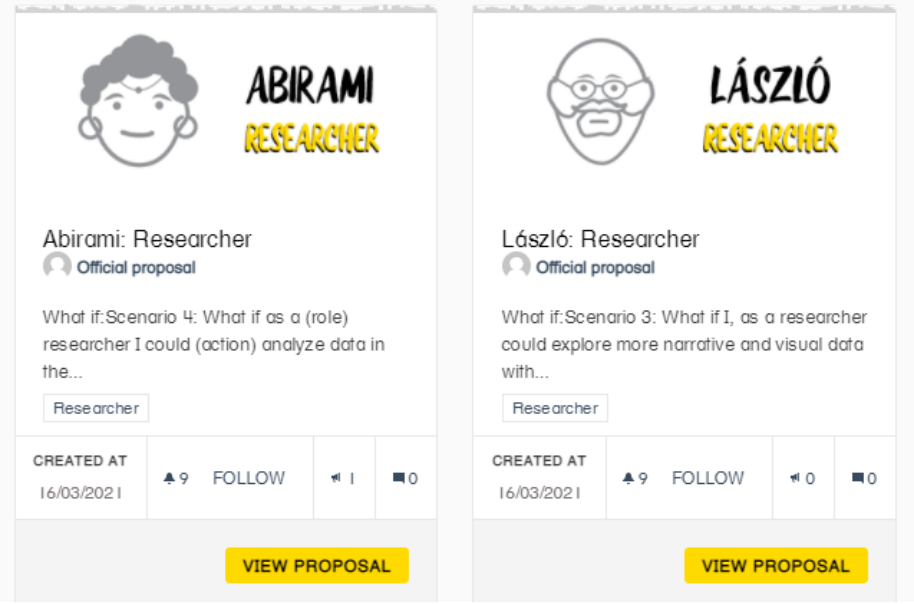

Fig. 4. See: "Designing a Model for Community Participation", Indices-Culture ('Personas - Designing a Model for Community Participation - InDICEs Participatory Space' 2021)

In the case of heritage projects, participants can be part of the institutional side, in different roles, or part of the audiences - which can be segmented in different ways - or part of stakeholders that connect to the

heritage in some way or another. On the institutional side, there are many roles to take into account, ranging from an operational level to a senior management level, each with different exposure to the respective audiences. We can think about collection managers, curators, catalographers, archivists, museum directors, librarians, metadata experts, digitisation experts, etc. So an important step is to identify which roles you want to include in the research.

Informing participants

It is important to clearly inform participants about their role, what is expected from them, and how it fits in the grand scheme of things. You also should indicate how they will be kept informed about the scientific results. There are many ways to do so, but certainly, this information should be accessible on the project website, and be communicated during activities.

Privacy

The European GDPR regulation imposes quite stringent measures on how privacy-related information should be treated. This can have an impact on what kind of data can be collected. For specific data, such as race, health, employment, etc., specific rules apply and a review by an ethics committee is required. Most Higher Education institutions have such a committee in place and provide a set of procedures to follow.

3.2.2 Running

While research activities may vary (interviews, workshops, panels, surveys, annotation campaigns, hackathons, …) it is crucial to stress the following focus points: documentation, traceability, and replicability. For CitizenHeritage, we will focus on two formats: a co-curation activity and workshop and an annotation campaign.

➔ **Documentation**

It is advisable to publish a specific page on your project website which lays out the following aspects:

- Copyright notifications for all content on the website, but also the intended IP status of the project outputs;
- Privacy regulation conformity;
- Indication of the role of participants and the author status of these participants, possibly offering opt-in/opt-out choices;
- Intended audiences, use, publications, and outputs

➔ **Traceability**

From the moment users have a login and personal ID - with their consent - on your project website, make sure their actions are traceable - of course safeguarding privacy - when they add or alter information.

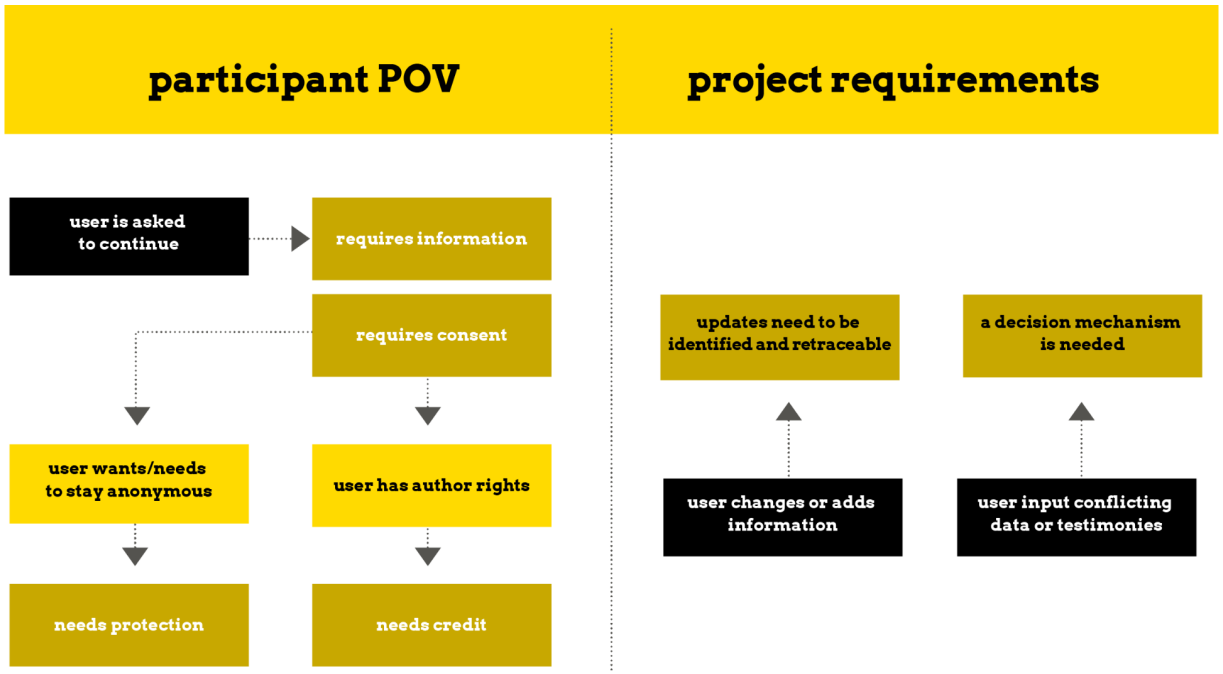

Fig. 5. Traceability requirements

➔ **Replicability**

A good research setup, whether it is using a quantitative, qualitative, or mixed methodology, should be replicable by other researchers so that research results can be compared and validated. In this sense, it is always a good idea to make a template for your research activity before even deploying it.

➔ **Participant follow-up**

Giving due respect to participant contributions also entails providing follow-up actions, like a newsletter, updates on the websites, mailings, and other ways to keep the participants in the loop.

In its most elaborate form, building a participatory platform can make sure the relations with the contributors become more sustainable.

However, the first step is to run an evaluation questionnaire to collect impressions of the participants. CitizenHeritage provides a template for this.

3.2.3 Analysis & Publication

For a CHI, it could be beneficial to keep track of scientific publications that are made on the basis of their digital collections. In fact, you could rely on the **database rights** to ask that your resource should be mentioned properly in academic papers relying on these collections. Even better is to have structural collaborations with relevant research groups.

Anyway, when publishing the data from Citizen Science initiatives, depending on the role participants took up, they should be mentioned in due form. This will not often be as co-authors or co-curators, but at least correct credits should be given to the contributors.

The results can be divided into three kinds: data, enhanced collections on the one hand, and academic papers and publications on the other. For all, we recommend principles of **Fair Open Access**.

This means the results should be **F**indable, **A**ccessible, **I**nteroperable, and **R**eusable. We will focus here on what this means for the research project data management, according to the “FAIR Guiding Principles for Scientific Data Management and Stewardship” (Wilkinson et al. 2016).

The FAIR Guiding Principles

To be **Findable**:
F1. (meta)data are assigned a globally unique and persistent identifier
F2. data are described with rich metadata (defined by R1 below)
F3. metadata clearly and explicitly include the identifier of the data it describes
F4. (meta)data are registered or indexed in a searchable resource

To be **Accessible**:
A1. (meta)data are retrievable by their identifier using a standardized communications protocol
A1.1 the protocol is open, free, and universally implementable
A1.2 the protocol allows for an authentication and authorization procedure, where necessary
A2. metadata are accessible, even when the data are no longer available

To be **Interoperable**:
I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
I2. (meta)data use vocabularies that follow FAIR principles
I3. (meta)data include qualified references to other (meta)data

To be **Reusable**:
R1. meta(data) are richly described with a plurality of accurate and relevant attributes
R1.1. (meta)data are released with a clear and accessible data usage license
R1.2. (meta)data are associated with detailed provenance
R1.3. (meta)data meet domain-relevant community standards

Fig. 6. Table of the FAIR Guiding principles

3.3 The Self-Assessment Checklist for Cultural Heritage Institutions

As stated in the previous sections of this document, the implementation of Citizen Science and crowdsourcing initiatives is gradually becoming a priority in the cultural heritage sector (Ridge et al., 2021). In that sense, the commitment is two-folded and comprehends not only a wider engagement of the public with digital collections but also an increasing cooperation level between members of the public and cultural heritage institutions. As a consequence, the public's expectations are steadily rising regarding aspects such as the quality of their experience, the magnitude of their collaboration, the acknowledgment of their rights as participants as well as of their contribution's value, attention to ethical issues, etc. For these reasons, developing and running crowdsourcing or Citizen Science initiatives might represent a challenge for many cultural heritage institutions. These actions require not only excellent preparation in terms of ensuring the public's engagement but also special attention to certain, often overlooked, elements.

This framework represented the basis of the development of **a self-assessment checklist** addressed to cultural heritage institutions involved with the implementation of a Citizen Science action - or that are willing to implement one. The goal of this tool is to allow Cultural Heritage and/or Higher Education Institutions to assess the level of readiness of their Citizen Science initiative and understand whether they are implementing the right approaches and methodologies. The tool is divided into four parts which reflect the cyclic methodology for Citizen Science projects and comprehend a section dedicated to the steps an institution should go through before, during, and after the Citizen Science action. The fourth and last part is then dedicated to the evaluation of the impact of the initiative. Depending on their answers to the questions on the checklist and on the type of support they need, institutions receive relevant material to look up, such as suggested readings, guidelines, best practices, on-topic websites, etc. This intends to give cultural heritage institutions the chance to understand which actions should be undertaken and which elements should be taken into consideration during each stage of the initiative's planning. For instance, the tool addresses relevant topics such as legal or ethical issues, data management challenges, the application of FAIR Open principles, participant recognition, etc.

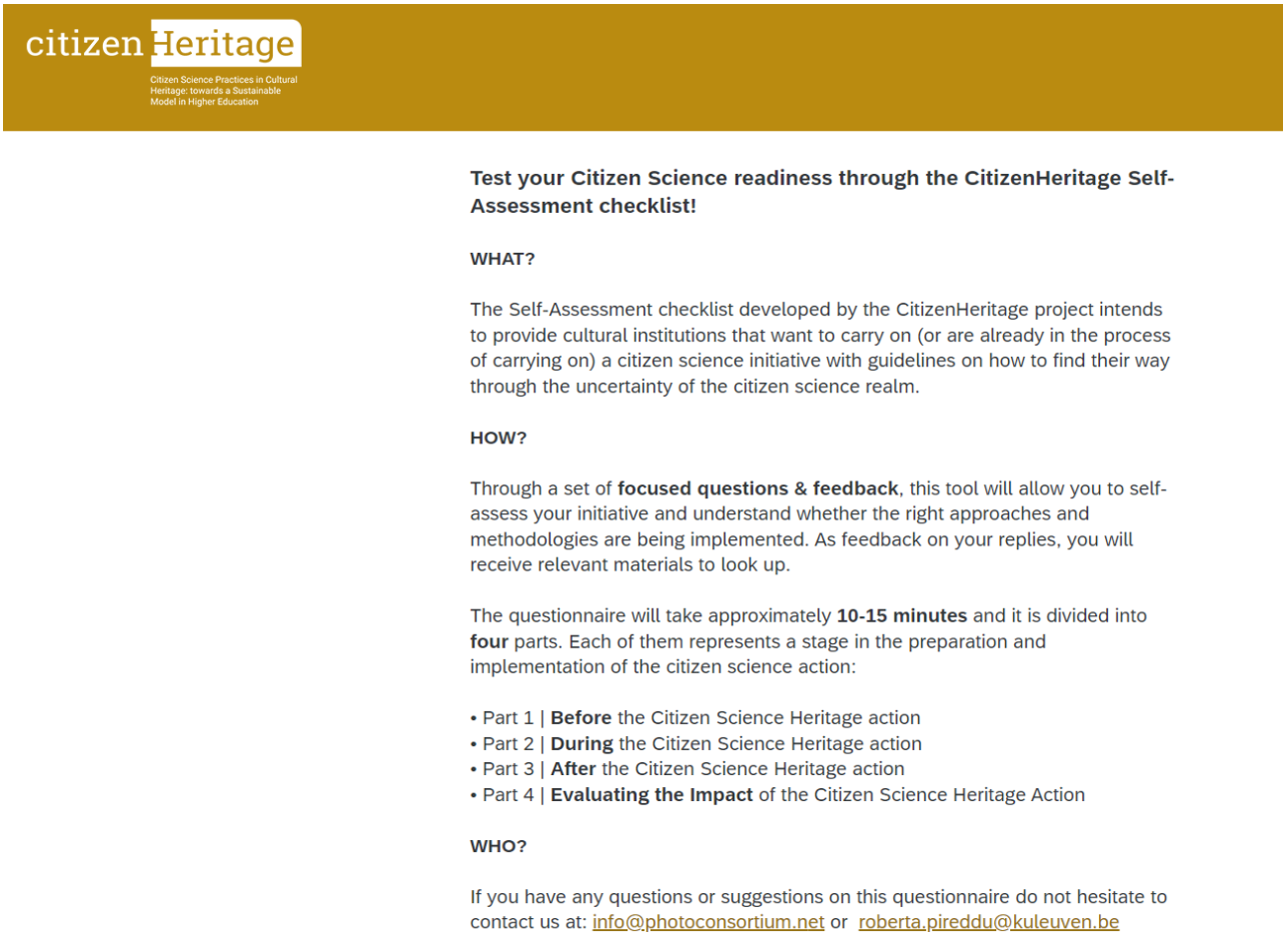

Fig. 7. Introductory page of the Self-Assessment checklist

3.3.1 Implementation

The self-assessment checklist was developed using Qualtrics XM, a simple-to-use web-based survey tool to conduct survey research, evaluations, and other data collection activities. However, the actual implementation of the SA checklist and its creation of Qualtric's platform was preceded by a thorough design of the self-assessment tool's backbone. In the context of the project, this took the form of a participatory, collaborative activity since all the partners involved in the CitizenHeritage project were actively engaged in the creation of the SA checklist.

A Google collaborative document was used to build the different sections of the checklist, the possible questions and answers as well as to create a list of possible informative material for the users which included articles, blog posts, templates, book chapters, websites, etc. This process went hand in hand with the scheduling of monthly meetings with the project partners which served not only as moments for ideas exchange but also had a monitoring purpose. In this context, the collaboration with the partners affiliated to the European Citizen Science project in enriching the tool with further relevant material resulted to be crucial for the improvement of the proposed documentation in the SA checklist.

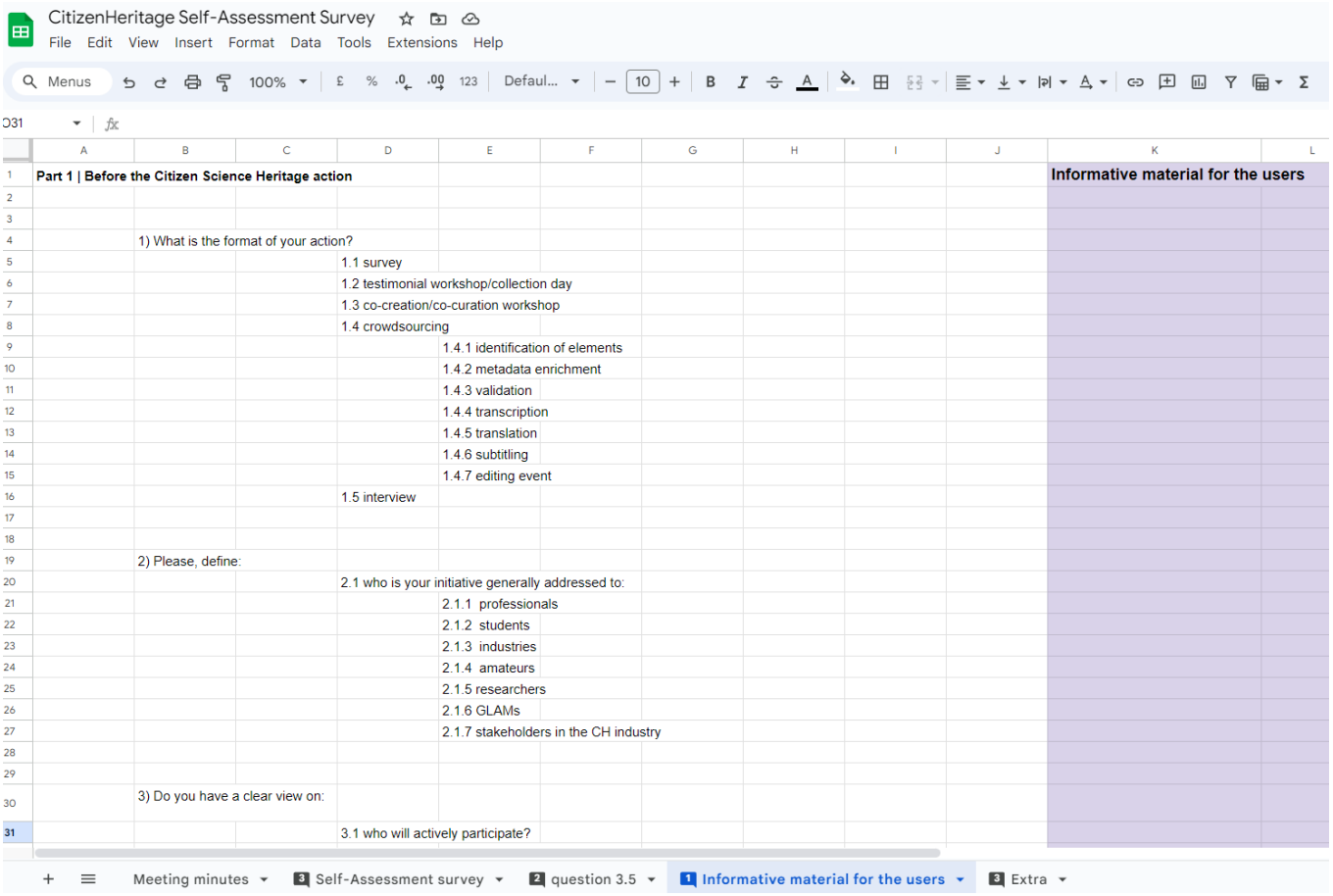

Fig. 8. Self-assessment checklist questions' planning

Once the main pillars, in terms of content, of the self-assessment checklist, were set up, we proceeded with the implementation of the questions and the answers on the Qualtrics' platform. During this process, the self-assessment checklist was also shaped from an esthetical point of view in order to reflect the visual design of the project.

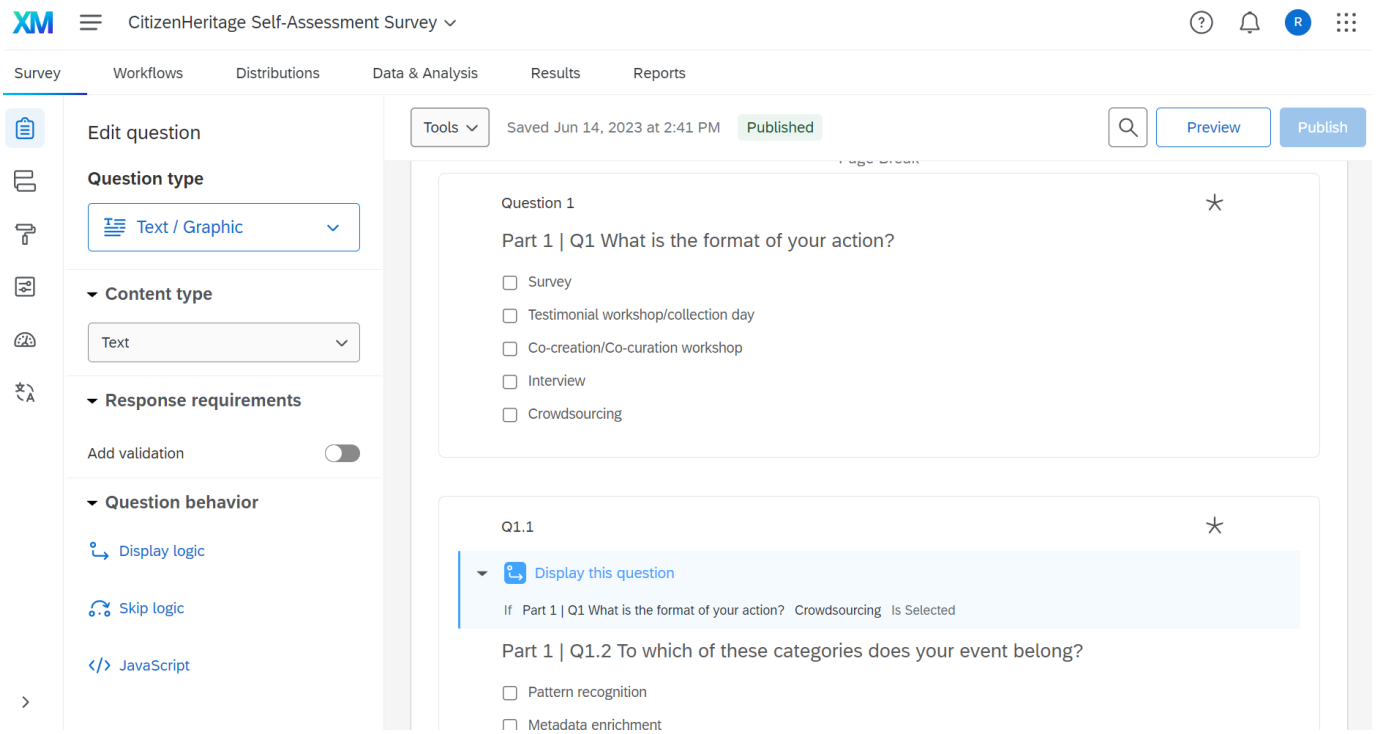

Fig. 9. Self-assessment checklist implementation on Qualtrics

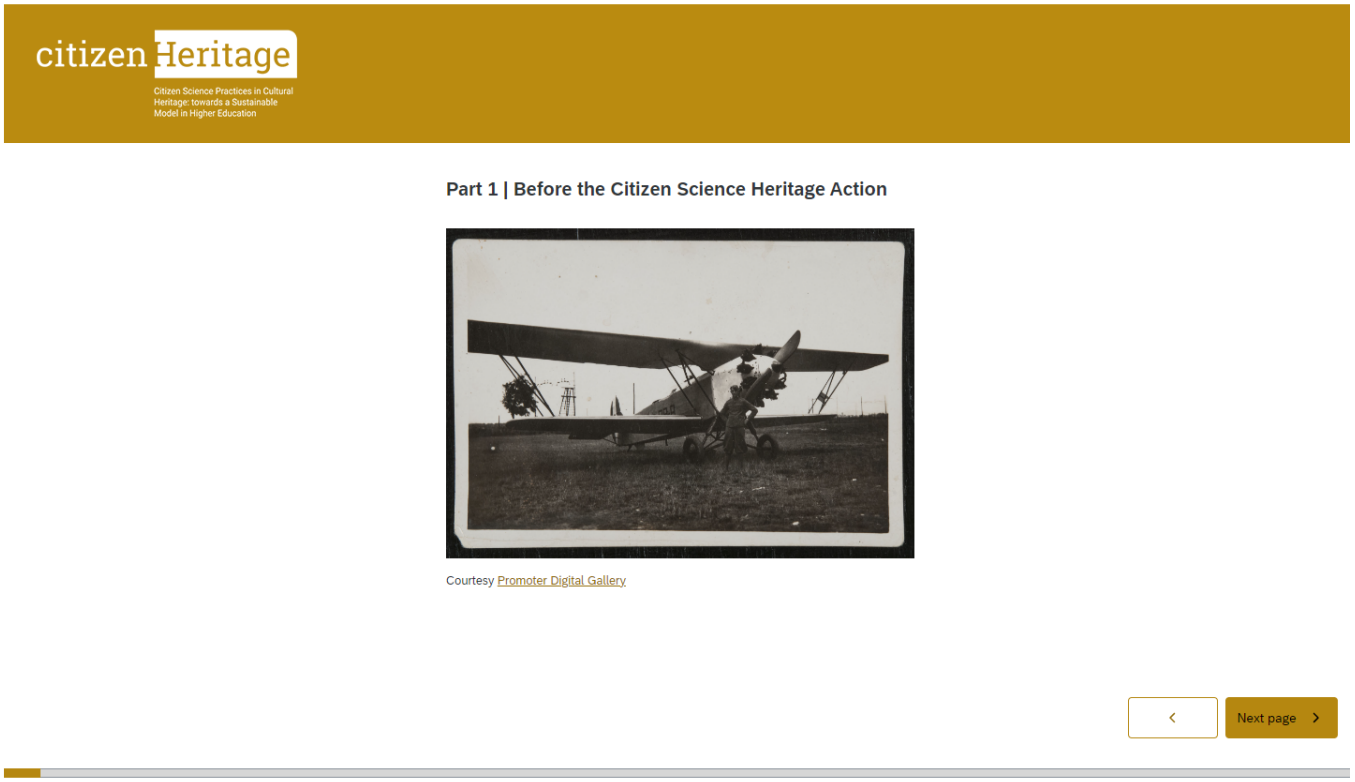

Fig. 10. Example of visual element on the Self-Assessment checklist

3.3.2 Dissemination and Reception

Once implemented and tested by selected professionals in the GLAM sector, the self-assessment checklist was disseminated through several channels:

- Via the CitizenHeritage newsletter
- Via the Citizen Heritage website: a banner with a link to the tool was added to the main page of the CitizenHeritage website.
- During CitizenHeritage workshops, conferences, and multiplier events
- Via the CitizenHeritage social media channels
- Via the partners social media channels

Moreover, for dissemination purposes and for a better uptake of the produced guidelines, we developed an operative booklet (see O3 annex) meant to visually support, either for online consultation or in printed form, and summarize the guidelines already available in the self-assessment checklist and to be used by the institutions as a ready-to-use source of information for the planning of their CS event. The booklet is in fact composed of four main pages, designed in a visually engaging manner. While the first page intends to introduce the user to the project as well as to the use of the booklet, the following three pages summarize the actions that institutions should take during the three stages of the development of a Citizen Science event: Before, During, and After the CS initiative.

As already mentioned before, the booklet functions as a practical handbook designed to assist individuals and organizations in effectively orchestrating Citizen Science (CS) events. These events serve a dual purpose: they provide valuable scientific data while also fostering community engagement and enthusiasm for Cultural Heritage. The leaflet follows a structured approach, offering clear, step-by-step instructions for each stage of planning and executing a CS initiative.

- **Before - Preparation of the CS Event:** This section covers the essential groundwork before the CS event, addressing elements such as goal definition, participant identification, event format selection, documentation provision, engagement strategies, promotion, data transparency, and planning for data collection and analysis.
- **During - Running the Activity:** Here, the focus shifts to the event's execution. It emphasizes community-building, effective communication, responsible conduct, data and intellectual property protection, and upholding ethical standards throughout the event.

- **After - Analysis:** The analysis phase includes guidance on data management, analysis techniques, quality control, and result interpretation, ensuring that the gathered data contributes effectively to the initiative's overarching objectives.
- **After - Publication:** Post-event, sharing findings and outcomes becomes crucial. This section covers communicating results to participants, stakeholders, and the wider public. It encourages sharing results, gathering feedback, evaluating impact, enhancing future events, following up with contributors, and organizing data for analysis, all while ensuring proper attribution in research publications.

By providing step-by-step guidance and advice at each stage, this booklet becomes a valuable resource for CS event organizers. It not only offers a structured framework but also prevents crucial aspects from being overlooked.

4. User Engagement and Participation in Cultural Heritage and Higher Education: An Interview-based Analysis

Recently, and in particular, since the beginning of the COVID-19 pandemic, user engagement and digital participation initiatives have gradually started being adopted by GLAM institutions in the cultural heritage sector (Ridge et al., 2021). This tendency has gone hand in hand with the progressive opening of digital collections to the public and the adoption of strategies aiming at enhancing audience interaction and contribution to the collections. However, while Citizen Science approaches appear to be slowly finding their place in GLAM projects and activities, in the higher education field it is still possible to sense a sort of skepticism regarding topics such as crowdsourcing, co-creation, Citizen Science, citizen participation, etc. How are CS strategies concretely used in the GLAM sector? How can CS practices in cultural heritage be concretely introduced to the higher education sector? Are there new emerging methodologies in the CS environment that can be potentially implemented or used as good practices?

With these questions in mind and aiming to bring the academic field closer to Citizen Science practices, we initialised a series of **conversations** with **six Cultural Heritage professionals** working at prestigious institutions in the European GLAM sector and specifically at the crossroads between cultural heritage and education/academia:

- **Kristina Petrasova**, Project Lead Digital Heritage & Public Media at the Netherlands Institute for Sound and Vision (NISV). Kristina focuses on research and production of cultural and artistic projects, exhibitions, and documentary films.
- **Ismo Malinen,** Chief Intendant (Head of Unit) of the Picture Collections at the Finnish Heritage Agency. His fields of expertise include museum collections, collection management, exhibitions, and the development and coordination of digitization.
- **Marco De Niet** Deputy Director of Leiden University Libraries, is responsible for all Research and Education Support. His main interests include Open Access Publishing, Digitisation of Cultural Heritage, and the Impact of Digital Services.
- **Ines Vodopivec,** Deputy Director of National and University Library of Slovenia. Previously, she was Dean at Nova University, Head of University Library and Main Editor at Journal of Library and Information Science.
- **Isabel Beirigo**, Research Communications Specialist at The Netherlands Institute for Sound & Vision. She is a historian, researcher, heritage professional, and specialist in audiovisual collections.
- **Kerstin Herlt** works as EU project coordinator at the DFF - Deutsches Filminstitut & Filmmuseum in Frankfurt am Main. Current projects and initiatives include EFG - The European Film Gateway which aggregates film heritage data to Europeana and DE-BIAS, which promotes an AI-supported and inclusive approach to cultural heritage collections descriptions. Kerstin Herlt holds a master's degree in Roman Philology, Sociology and European Media Studies.

Besides providing valuable material for the academic sector to be used in the planning process of a Citizen Science project, in these conversations we aimed to investigate the instances of intersection between user engagement and education. Also, we intended to highlight interesting and relevant good practices and strategies valuable for the application of Citizen Science methodologies in the higher education field. For these reasons, we decided to revolve our interviews around the following topics:

- General vision of the idea of Citizen Science and its applications;
- Professional experiences where users' and participants' engagement methods about cultural heritage collections had a key role;
- Role of (and challenges of the use of) users' participation in the cultural heritage;
- Collaboration between cultural heritage institutions and higher education;
- Feedback on the self-assessment checklist produced in the context of the CitizenHeritage project;

All the interviews were carried on online and -prior permission of the interviewees- recorded and -through the aid of a transcription tool, transcribed. This process was then followed by a quality analysis of the interview data which led to the identification of five patterns or trends:

★ Accessible terminology

The existence and especially the use of different terminologies (such as Citizen Science, crowdsourcing, co-creation, etc.) to define/indicate (either onsite or online) one single common approach, namely user participation, might possibly have a misleading effect not only on the institutions who are willing to open up their collection and to enrich their collection by using the help of their audience but also on the public/contributors itself which might be confused on terminology and therefore also on the scope and format of the initiative.

*"I think everybody who is interested in the **practices** of crowdsourcing, Citizen Science, and public engagement should be able to access them, also from a terminological/linguistic point of view"* (Kristina Petrasova)

For these reasons, it would be important, when engaging with the audience, to be as transparent as possible regarding the terms used to describe the action itself, the meaning, the objectives, and the expectations. These elements contribute to emphasizing the need for a unification/standardization of the terminology used at a European level when talking about citizen contributions.

★ Network building

Creating a good connection with the public and putting an effort into maintaining this connection constantly not only during but particularly after the Citizen Science initiative plays a pivotal role in the establishment of a long-term relationship between the Cultural Heritage or Higher Education institution and the contributors.

"It is very important to create programs that are relevant, that are interesting (for the public)" (Kristina Petrasova)

"I think that through good networking you have the necessary connection with higher education institutions that can bring you some knowledge or some more up-to-date knowledge that (a cultural) institution maybe it's not aware of. Also, at the same time, you have connections with specific parts of the community that hold the knowledge that you want to bring to your institution." (Isabel Beirigo)

★ Community management

The power of community management is one of the elements at the basis of a successful Citizen Science initiative, although its value is often underestimated. Preparing the contributors for the task that they will have to undertake during the initiative by making necessary resources and training available, allows the participants and the organizers to engage with the task from the same reliable point of departure and to create harmony among the two groups. It is, in fact, essential to put an effort into the unification and guidance of the contributors.

"You need some allies, people who can be a bridge between the institution and the target audience. You need somebody to understand both sides. " (Ismo Malinen)

"Community management of these (citizen scientist) groups has vital importance. So we have to invest quite a lot of time and effort in the connections and communication instructions and so on." (Marco De Niet)

★ **Bridging the gap between CHIs and HEIs**

The connection between the education sector and cultural heritage institutions does not always happen smoothly and collaboration and participation are sometimes hindered by the use of different approaches and methodologies to tackle perhaps the same problem. However, it is important to try to reduce the gap between these two worlds, in order to create more opportunities for knowledge exchange and co-creation - especially in the context of a CS initiative. CHIs can learn from what is being discussed in academia and what are the latest research results. At the same time, HEIs can comprehend the obstacles institutions face daily.

"Having academia close by to inform the work on collections is not only extremely useful and enriching for the cultural heritage but is hugely beneficial not only for individual researchers but for international research profiles." (Ines Vodopivec)

"(...) My feeling is that academic institutions lack a better connection to digital transformation. (...) So you need someone on the other side as well as a counterpart who feels or sees the need for the digital challenges, the transformation in the archival sectors, so that's something that needs to fit together." (Kerstin Herlt)

"I think the education sector is lacking resources and that Citizen Science might represent one way to put our resources together and help each other." (Ismo Malinen)

4.1 Lessons learned on CHIs and HEIs collaboration

The result from the analysis of these six conversations with experts both in the Cultural Heritage and in the Higher Education sector brought us to deeply reflect on the multifaceted aspects and values of contributors' engagement in both environments. Besides asking ourselves how to make citizens' contributions and their experience as participants more valuable and properly recognized, we also started asking ourselves how to make the connection between these two sectors more fruitful and smooth.

In order to ask these questions we identified a set of lessons learned and elements that might be worth addressing in the future:

- **Teaching your contributors** - It is important to keep in mind that participants in a Citizen Science initiative are not only interested in getting involved in a project but they are also expecting to learn and receive guidelines. Establishing some learning procedures to make this process smooth is not always beneficial for them but also for the quality of the result.
- **Recognize the value of your contributors -** User engagement value is an element that needs to be strongly recognized. Citizen Science actions should be in fact two-sided: the act of contributing should be paired with those of knowledge sharing and giving.
- **Dissemination at a HEI level** - Cultural Science practices are still very little taken into account in the education domain. For this reason, it is essential to start disseminating and talking about Citizen Science as a practice that has a big potential in the education sector and not only in the GLAM environment.

5. Conclusion

This document aims to offer an overview of the different stages that led to the development of a methodology for the empowerment and support of Cultural Heritage and Higher Education institutions in the development of Citizen Science initiatives.

We discussed how Citizen Science practices could be more concretely used in the higher education field and we highlighted the possible advantages of the adoption of a cyclic approach in the implementation process of a participative initiative - which comprehends the phases of the preparation of the research, the running of the research activity, the analysis of research results, and their publication. In this framework, the document provides also a detailed description of the development of a self-assessment checklist created to support Cultural Heritage and Higher Education institutions for the evaluation of their level of readiness in the implementation of their Citizen Science action.

Finally, we outlined the results of a set of conversations with professionals in the Cultural Heritage sector on user engagement and participation in the context of CS initiatives as well as on the relationship between cultural heritage and higher education institutions. This created the basis for a further investigation of the potential of a synergy between the two sectors.

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