

DELIVERABLE

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EXECUTIVE SUMMARY

This deliverable summarises the outcomes of the Workshop on User Requirements and the first results of the case studies organised by the Civic Epistemologies consortium. The main aim of this workshop was to bring together project partners and local stakeholders and to discuss the emerging requirements and needs of citizens related to the use of e-Infrastructures across different stages of the research lifecycle, combining relevant experience from work undertaken outside the Civic Epistemologies project with expert input and case studies performed within the project.

The event was attended by representatives of almost all project partners and local representatives from the Cultural Policy Committee, National Archives, Friends of the National Archives, Notarial Archives, St James Cavallier Centre for Creativity and University of Malta. In addition to these participants, the workshop had four external speakers, coming from the Netherlands, Wales, Luxembourg and Spain, who discussed in depth citizen science experiences outside of the project in the domains of music, libraries, historical research and e-Infrastructure.

The event combined presentations with discussions and brainstorming sessions and visits to local cultural heritage institutions. It helped to:

- Identify the key groups of users addressed by the project (CH professionals, academics, citizens, cultural industries) as well as key stakeholders (CH institutions, funders, media, academic institutions, citizens activist organisations);
- Achieve a better understanding of the specific requirements of those groups as well as of possible overlapping;
- Discuss how to report these requirements in order to include them in the Civic Epistemologies roadmap.

1 INTRODUCTION

Citizen science gained substantial popularity and is becoming a new outlet for people who are not professionally trained to be researchers but have the possibility to contribute to a wide range of research. The modern technological environments allow for innovative ways to involve vast groups of such voluntary researchers in different ways; however citizen science is not a modern phenomenon being particularly prominent in 19th century.

Currently citizen science is very popular in the sciences but is not equally prominent in the domains of Humanities, Arts and Digital Cultural Heritage. Hence, there are two major issues which the Civic Epistemologies project addresses:

- 1) *How to increase the use of citizen science within the digital cultural heritage context.*
This can be done understanding better the current contexts of use and the stumbling blocks for various types of stakeholders involved in citizen science. In other ways this requires to identify the stakeholders relevant to citizen science, and to capture their requirements. This knowledge can also allow for building better targeted awareness campaigns, and for setting up realistic indicators for the outcomes of new citizen science initiatives.
- 2) What components of the e-Infrastructures facilitate citizen science and what tools are currently missing.

This deliverable aims to provide a first answer to the first issue formulated above. It provides a general introduction to citizen science; introduces the methodology of the case studies undertaken in the Civic Epistemologies project and presents the outcomes of these studies.

The results of this work will be further developed in D2.2 Key characteristics and requirement of e-Infrastructure for citizen scientists in digital culture.

The main outcomes will be then taken into account in the Roadmap for broadening e-Infrastructure deployment to support citizen researchers in digital culture, which is the central objective of the Civic Epistemologies project.

2 REQUIREMENTS IDENTIFIED IN PREVIOUS CITIZEN SCIENCE INITIATIVES

2.1 QUICK INTRODUCTION TO THE CONCEPT OF CITIZEN SCIENCE

The increasing popularity of citizen science is demonstrated by the growing number of publications in this area [Dobрева, Azzopardi 2014]. However, there are also substantial differences in the understanding what citizen science actually is. Below are a number of definitions collected from various sources:

"Citizen Science refers to the general public engagement in scientific research activities when citizens actively contribute to science either with their intellectual effort or surrounding knowledge or with their tools and resources."

European Commission; Green Paper on Citizen Science (2013)

"Citizen science is a process whereby citizens are involved in science as researchers."
Conrad and Hilchey (2011)

"Citizen science refers to a programme in which a network of volunteers, many of whom have little or no specific scientific training, perform or manage research-related tasks, such as observation, measurement, or computation."

Schnoor (2007)

"Citizen science is a research technique that enlists the public in gathering scientific information."

Bonney et al. (2009)

"Citizen science is a method by which the researchers identifies the problem and design the study, and volunteers collect data to be analyzed and interpreted by the researcher."
Weckel, et al. (2010)

A new role emerges – the one of the citizen scientist, but it also is defined in various ways:

"A citizen scientist is a volunteer who collects and/or processes data as part of a scientific enquiry."

Silvertown (2009)

"Citizen scientists are volunteers who participate as field assistants in scientific studies."

Cohn (2008)

As can be easily noted, the definition of the term "Citizen Science" differs across the various papers written on the subject. The most common aspect seems to point out to the nature of citizen scientists as being amateur researchers who gather scientific information, on a voluntary basis, their only incentive being their participation to the project.

Furthermore, also the form of the study is not unique. Oomen and Aroyo (2011) highlight six different typologies of Citizen Science Projects, each one linked to a different kind of study:

1. Correction and transcription - the citizen is given access to a database (this is usually a text-based database like scanned manuscripts) and then he gets the task of

transcribing or making corrections to the text which was already transcribed electronically via a computer programme.

2. Contextualization - Citizens submit data such as letters, stories, films, photographs or other documentary material in order to gather a meaningful context.
3. Complementing Collection – Citizens are asked to submit data into databases with the ultimate aim of completing them or making the collection grow.
4. Classification – Citizens tag the data, or label it, in order to easily group similar data and make the information more easily retrievable in the future.
5. Co-curation – This practise occurs mostly with projects involving the aesthetic arts. Citizens interact with institutions and voice their opinions when it comes to choosing articles or items for publication.
6. Crowdfunding – Citizens are asked to gather together money and/or resources in order to support efforts initiated by others. Popular platforms used specifically for this purpose are: Kickstarter (<https://www.kickstarter.com/>) and Indiegogo (<https://www.indiegogo.com/>).

2.2 CITIZEN SCIENCE AND CROWDSOURCING IN CH

The participation of multiple contributors to a common task is a well established common practice in the cultural heritage domain through crowdsourcing projects. More exotic varieties of crowdsourcing work are the transcribe-a-thons (special sessions organised to produce transcription of a text, either modern handwritten or historical); translate-a-thons (where multiple contributors help to translate major work or a corpus of works) and review-a-thons (where users make systematic review of a translation or transcription).

The difference between citizen science and crowdsourcing especially in the Humanities is to some extent blurred. Both refer to activities which include contributions from multiple volunteers who are not professionals in the tasks they contribute to. However, there is one aspect which allows differentiating between these two concepts, Citizen science involves activities and people with a specific research focus and they are organised as a “rule” in a project which is led by a professional researcher. Crowdsourcing benefits instead from the time and skills investment of volunteers but does not aim necessarily to achieve research outcome and it is not coordinated by a researcher.

Although the use of citizen science in the Humanities is less popular than in the Sciences, this does not mean that these do not exist. Examples follow:

- “Letters of 1916” project, a website which gathers letters to or from Irishmen submitted from all around the world. These letters can also be translated or transcribed by anyone on the website. This project helped shed light on that era's lifestyle, thus bringing academics and enthusiasts of those times closer to that era.
- “Georeferencing: help us place our digitized maps” is another project which makes use of an online interface and of citizen scientists to decode their data. This project's aim is to help the British Library identify their historic maps and correctly place them in their modern day location.

2.3 EMERGING REQUIREMENTS RELATED TO CITIZEN SCIENCE E-INFRASTRUCTURES OUTSIDE OF THE CH DOMAIN

Citizen science is composed of various elements such as applications, workers, and institutions, which need to work harmoniously together in order to reach the project's goals. Various infrastructures are employed to make the process run as smoothly and seamlessly as possible. Previous studies (as summarised in [Azzopardi, Dobрева 2014]). explored for example the technological devices used in such initiatives These will be presented and discussed in more detail in D2.2 but here we are providing some examples:

1. Smartphones/mobile apps – Applications used for a variety of purposes, such as logging or providing data, tracking the citizen's movements, etc.
2. Websites – These can provide information on the projects as well as act as points to input the data.
3. Video for training – Video to showcase the method for gathering data and submitting it.
4. Online data entry – This can be done via the application or the website.
5. Data analysis tools – Tools used to glean more information from the given data.
6. Social media – Can be used to disseminate information about the project and keep the users updated on the project, thus increasing the public's awareness of the project.
7. Mapping capabilities – Mapping the data gathered to triangulate common patterns, etc.
8. Database improvements – More storage, options, etc.
9. Support materials – Other materials used in aiding the project.

3 REQUIREMENTS EMERGING FROM CASE STUDIES WITHIN THE PROJECT

3.1 METHODOLOGY OF GATHERING REQUIREMENTS

Civic Epistemologies adopted a mixed method approach for gathering user requirements (see Fig. 1).

- **Existing body of knowledge** (the project team studied existing publications and examples of projects from the domains of Humanities, Arts and Digital Cultural Heritage – which could later be adopted as best practice examples);
- **Case studies** conducted within the project. The methodology adopted was a mixed method combining **expert consultations** within the project consortium with **focus groups** aiming to capture the opinions of different stakeholders/users (policy makers, citizen activist organisations and citizen scholars) and planning for conducting a **web questionnaire study** across CH institution professionals.

The role of the workshop on user requirements was to start consolidating the various observations and findings.

The workshop on requirements was held on 25-27 November 2014 in Malta. It attracted representatives of all Civic Epistemologies partners as well as some key representatives of the Maltese policy makers and cultural heritage and arts sectors (see Annex 1). The workshop followed a structure of alternating presentations of existing experiences with brainstorming sessions.

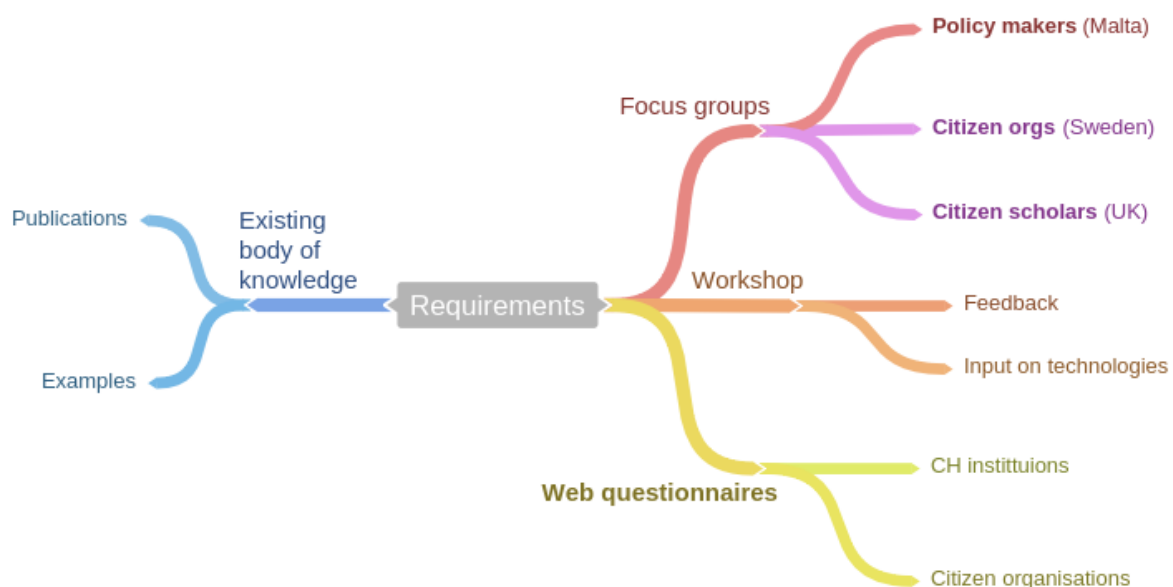


Fig. 1. Summary of requirements sources in the Civic Epistemologies project

3.2 FOCUS GROUPS

Three focus groups, one in Malta, one in Barcelona and a third one in Sweden were held in October-December 2014. Three project partners were in charge of the focus group, respectively University of Malta, Coventry University and National Archives of Sweden, with the overarching leader and organizer being the University of Malta. The participants in the focus group held in Malta consisted of policy makers and cultural heritage managers, Barcelona's group was made up of citizen scientists, while the members in Sweden were activists. The decision to target different types of stakeholders in the three focus groups aimed to capture more clearly the differences in requirements of these three key stakeholder communities.

The aim of the focus groups was to analyse the participants' views on the potential strength of the citizen scientists and collect their feedback.

The focus group protocol (Annex 2) is divided into various sections, each designed to delve deeper into the issue discussed. The protocol for this study also included questionnaires; their analysis in comparison with the online questionnaire for cultural heritage professionals will be addressed in D2.2.

3.2.1 Overview of participants across the various groups

Policy makers

This focus group was held on the afternoon of the 31st of October, 2014, in Valletta. There were thirteen participants in total consisting of policy makers, managers of cultural heritage institutions as well as a couple of Library Studies students from the University of Malta. While the majority was Maltese, three foreigners also attended.

Most participants have heard of citizen science but not everyone was confident what it really means. One of the interesting developments during this group was that some of the participants, who initially were not sure what citizen science means, discovered during the group that they actually have contributed to citizen science initiatives before. This illustrates one particular point about future awareness campaigns which might include providing examples of activities which in fact related to citizen science but which are not "branded" with the right term.

Discussions were mild at first but slowly the participants started to voice out their opinions as the time went by. The general impression was that citizen science is not something that can happen in isolation; the institutions need to work to create and maintain a relationship with the members of the community. Despite it being the right way forward, the institutions must strive and make an effort to enlist the cooperation of the community, particularly the ones they dwell in, although distant communities can also be included with the help of an ever advancing digital world.

Digitization is a very valued activity in the local context. Among other things, such as easier collection and dissemination of data as well as tools to support the research, it makes things easier and creates a better interaction with the community. Specific knowledge for certain tasks can be needed, and thus a wider reach is more profitable and appreciated for such research (for example; correctly identifying the location of a photograph).

The general positive attitude towards citizen science was very strongly felt in this focus group. The participants discussed at length that the involvement of volunteers in the projects undertaken by institutions helps to establish a long lasting relationship and as such is a powerful way of engagement with the general public. Satisfied citizen scientists can help in future projects and might also serve as an effective “word-of-mouth” advertising, which would in turn bring more people to the institution. This could also help create dialogue with the community in terms of shared memories.

People do not only attract more people with their enthusiasm only – one important point made was that if the people care, so will the governments. Political awareness might get the institution more help from the government, making them dedicate more time and resources to the institutions.

To create a better communication with the communities, one must also get to the source of it – children. These young members of our societies are often not aware of what is going on in their own communities, let alone on a national level. By creating a better bridge between the community and the children, this would help nurture individuals who would grow up showing more interest in the cultural heritage domain and thus be more willing to volunteer their help and services in the future.

The general feeling that seemed to stem from the discussions was that citizen science was a highly valued method which could be an immense source of data, but at that point was not necessarily accessible for the institutions to make use of. While it seemed easier to use citizens in a scientific research, the participants were finding it hard to clearly see a path one could take to make use of such an encompassing resource in the cultural heritage setting.

The focus group was split into two smaller groups, where both groups were given the same scenario¹ to discuss:

Scenario for discussion. One of the cultural heritage institutions in Malta is planning to introduce a citizen science project which involves unprofessional researchers to transcribe 19 and early 20 century texts. The full text collection will be used as well for a study of curators preparing an exhibition. The volume of the work would require some 20 person years for a staff member of the institution. What do you think would be the best way forward to organise such an initiative?

Both groups were given the same scenario with the aim to check if they will arrive to different conclusions although their conclusions were very similar to each other.

In the focus group, it was revealed that citizen science is very prominent in Malta. One member of the group argued that science is easier to attract people, for example, with scholarly papers

¹ Similar scenarios were discussed in the remaining two focus groups in Barcelona and Sweden.

at university and citizen palaeographers. However, for the humanities, it is harder to be confident that the people will sign up for it.

During the focus group, a participant mentioned that people do not or rarely walk into the institutions like the National Library; as a remedy another participant suggested that material should be put online and that digital communities are created. It was also suggested that unprofessional people need to be attracted to the task. Many people volunteer for NGOs but not for academia as for the latter one needs skills, so training has to be provided beforehand.

Moreover, most academics do not know what an institutional repository is, so their reaction is negative. The entire group agreed that whatever way is chosen has to include the democratic process.

The group agreed that the unprofessional researchers are going "farming outside" the institution, so long as the material is digitised. Moreover, they will be handling digital copies. The data they produce is to remain within the institution. Moreover, this should be put in the contract so that they do not discover something that has already been discovered, or that if they do discover something new, the institution they are volunteering for will own it.

To recruit the best volunteers one has to be objective. The prospective volunteers may not necessarily be professional in that subject; however, one needs a little background experience. First, the institution should target groups of people, like, for example, students or retired school teachers as they both have an educational background, then filter the selection. Marketing approaches like advertisement and social medias can also be used to make people aware that the institution is recruiting. Moreover, a policy and some sort of incentive are needed for volunteers. The volunteers will be trained by a professional who works there and monitored by a project leader.

The artistic use of data should be reflected in the project planning. The emphasis should be on artistically-relevant documentation. First, one has to prioritise things which should be done first, like making documents available, then transcription and finally an exhibition.

The Cultural Heritage institution will monitor the quality of the citizen researchers' work by either a project leader or sample checking by a professional. The project leader can check the progress of each volunteer individually. Fellow volunteers can help each other by providing peer reviews.

Some policies need to be in place in the institution and in the cultural heritage sector in general to avoid conflicts in the future. In the volunteer contracts, staff and volunteer roles need to be stated clearly to avoid conflict between the two. Check points are needed to inspect that the policies set by the institution are being followed.

Technological infrastructure is necessary if the institution is planning to introduce a citizen science project. An institutional repository is a digital asset that can be used in the institution. The volunteers (and the staff) can upload word documents to it. Then, the database can be used as a reference point.

When organising such an initiative, obstacles arise. Taking in volunteers can be difficult, but choosing the right ones is harder. Sometimes, someone can dedicate his/her free time to the institution, but there may be someone with more background experience that can be an asset to the institution.

Funding is also a problem. To transcribe the 19th and 20th century texts can be costly, so the institution has to see where it will get the funding for it from. If it is a new project, some sponsors may not be sure if it is worth it or not. They may invest a large sum of money in it, but then it is not successful, do they had wasted their money in vain. So the institution needs to prove that its project is worthwhile and will be successful. However, they also need to attract the right sponsors.

Considering that the institution has the desired number of volunteers it needed, the issue of maintaining the interest of the volunteers will come up in time. The institution has to come up with ways of how to keep its volunteers interested in the institution. For example, it can set new challenges for the volunteers; however more funding may be needed for this.

After gathering and analysing the data gathered from the focus group, a persona, Mark, was created:

Mark is a 40-year old CH professional from Malta with a role in defining the policies of his institution. He regularly uses CH collections not only for professional reasons but also because he has strong personal interest in the area. Mark is not quite sure how to use the digital collections of his institution for artistic purposes.

He is not that familiar with citizen science and has not played an active role in such projects but could be interested to try it in the future. Mark sees a range of benefits from using citizen science – mostly related to an improved relation and services offered to the general public but also to the visibility of his institution.

Mark is convinced that the main benefit from citizen science is not cutting any costs but better engagement with the general public.

Citizen scientists

The focus group with activists and non-professional researchers, helmed by Coventry University, took place on the 13.12.2014 in Barcelona, Spain and was composed of four participants, all of whom were unprofessional researchers.

The choice of the partners when preparing for the focus group was highly important and careful planning went into organising the group. The project consortium does not include a partner from Spain and organising the focus group in Barcelona provided a chance to tap into the experience and knowledge of local stakeholders. Barcelona is a city that enjoys a reputation for being at the forefront of ICT developments and for its connectivity. Therefore, it was decided to locate the focus group there with a compact group of citizens who have engaged in citizen science.

The term was new to the participants and they were not clear of its meaning and its usage. One participant said that he had not heard of term used in this context. *"In this way no. It is about bringing the science to the people and how it is used in investigations? The idea sounds familiar but in terms of academia, to bring it closer to the people, this is new."*

There was a general feeling of being intimidated by the term and all the participants hesitated in identifying as a citizen scientist, yet after the first discussion, they quickly slipped into using the term and were less hesitant about it. All participants had been part of projects where they

contributed to the research projects and felt included in those investigative data collections, but felt that it fell under participatory research and not necessarily under the umbrella of citizen science. One participant was surprised to see the term citizen science used within the cultural heritage sector and social sciences areas.

"...to use it within culture and history, it's difficult to see it. To call someone a scientist, maybe in the hard sciences but with digital technologies and cultural heritage, I had not thought about it."

There was a discussion around the term and the concept of cultural heritage. All the participants after the discussion felt they understood what the term means and agreed that they could fall under the citizen scientist category. After this initial discussion, the participants started using the term quite comfortably.

All participants in this group agreed they had citizen science experience. Each member of the group had been involved in various projects and investigations – ranging from EU-Funded projects, international, national and local projects as well as Lifelong Learning Council of Europe initiatives. One of the participants was active in his local library and had been part of the Immigration Museum. Another participant was working along side the University of Barcelona's CREA Research Centre. All the participants were currently supporting many of the national and international projects being carried out at the Àgora Association or Huera organization in the district of La Verneda, in Barcelona, Spain. All of the participants were using museums, archives and library collections 'for personal use' but this was directly related to their activist organisation activities. Half of the participants highlighted that the local museums and cultural heritage institutions in the area, like La Verneda's Civic Centre, all played a key role in shaping their personal activities which directly linked with their activist role and work.

There was a unanimous agreement among the participants that the experts, technicians and specialists have to incorporate the people and average citizens into the work carried out in cultural heritage institutions. The use of citizen engagement enhances the work and the quality of data collection, leading to a more enhanced project that is responding to the shift taking place in technology obsessed society.

"It is harder to manage the quality of a project, it is better when you use Citizen scientists."

"By using citizen scientists it helps situate the investigations being carried out and ensures that investigators are gathering the majority's opinions and ideas. There is a way to start with the census of a population."

Another participant offered a best practice example. The Immigration Museum located directly in La Verneda quarter is a great example of citizen science at its finest. *"the train known as 'the Sevillano' used to have limited stops and back in the 1950's and 1960's. There were very few trains that would come to this part of Barcelona. When the museum opened and wanted to learn more, they turned to us, those from 'La Verneda' to do the research. They collected our stories and recollections and any other artifacts, pictures we had and then created an exhibition that was part of the Immigration Museum."*

One of the participants emphasized that "it is very important that museums and libraries work in this way." A second said "it is important for things to return to the neighborhood".

The perversion of investigations and the methodology of some academics was analyzed and a discussion around the need for citizen science and how this may combat distorted views that some principle investigators may have. One participant explained that using citizen science can help challenge the way mainstream media portrays many communities. Through the use of digital technologies *"we, the people, can offer our views and try to change some of those stories that are passed down from one person to another."*

The use of citizen scientists needs to be carefully understood and take into account the varied needs of the volunteers and the target group. The motivations of the professionals needs to be clearly outlined which would allow the volunteers to have a clear understanding of how and what is expected from them.

The best way to include the voices of the unprofessional researchers is to ask them to get involved. Oftentimes the unprofessional researchers, those at a grassroots level, are not included and do not feel they can participate or be included in such projects. The participants highlighted that many of the projects that they have been a part of, asked them and others to be a part of the research. There was an active recruitment process from that took place and an effort made in trying to include them.

There were different ideas how to involve citizens, e.g. *"by having congresses and symposiums you can ask the people to participate."* Another participant said *"that you have to open the doors to people and allow the citizens and academics to talk."*

Half of the participants highlighted how the intention and creating a space within projects to include the non-academics, was not only important but essential to gathering the citizen's opinion. Science needs to be open to the public because it *"opens options. Creates more responsible, ethical ways of working."* and *"When you bring the citizens and allow us to help offer opinions, it allows for more than one way to solve problems."*

By using Citizen scientists within the cultural heritage sector there is a collective enrichment that takes place and the participants are managing and able to directly contribute and ultimately impact. One participant said that citizen science allows for people to not *"obey"* and *"allows us to be free to open new doors."* The participant goes on to use WWII Germany as an example saying that the *"citizens, the people, their experiences, those ordinary people later turned into the experts that changed history."* Another participant stated *"the best school is life"*.

The participants agreed that all could monitor the quality of the work- everyone from the researchers, experts and specialists to the volunteers and people involved. There was an agreement among the participants that when people feel part of something, there is pride and great care that is taken. The researcher must monitor the progress and process of the work but the standard and quality can be monitored by all the non-academics or citizen scientists involved, including the volunteers.

Citizen science projects are perceived to have benefits for both the researcher and the people who engage with the project. In addition, those indirectly involved are benefiting from citizen science. The participants highlighted that the data collected from the project is more comprehensive and represents a wider demographic. Citizen science can bring new or re-use resources that can have a positive impact on the project or investigations taking place. All agreed that citizen science could lead to a more inclusive society and lead to a gathering of a collective memory.

The short term benefits are: 1) there is a community feeling created/ belonging 2) immediacy to the data collection 3) empowering of a community 4) inclusive practices 5) increased knowledge of topics

"Simple facts of living can help advance the lives of many. Indirect way of working and changing the lives of many in a very easy way."

"Point of departure which asks various specialists in numerous sectors to analyze how to live and the quality of life they may have."

"Academics in the university... they make contributions that are very important and have a knowledge that are very important for the society but we shouldn't forget the others. We also have a lot to say and are equally as important as the academics. The voice of the people, those at grassroots, must be included."

One participant offered an example of a project he was part of 12 years ago where a young girl with no formal schooling or training had an enormous capacity to contribute to the project. *"Including her in the project and allowing her a voice to express her knowledge 'her science' greatly impacted the project."*

The long term benefits are: 1) established community 2) best practice examples and reference for future projects 3) empowering of a community 4) inclusive practices 5) Benefits to society and more democratic society 6) Participate in investigations which may lead to continuing development of individual, family or society 7) Transferable skills.

The opinions on incentives for the volunteers (i.e. what are their main motivations to contribute their time and knowledge to a citizen science project) were different. All the participants agreed that monetary or commodities are not necessarily better ways to gather volunteers. Trying to include their voices and showing the volunteers the short-term and long-term benefits of participating, should be enough.

As a major challenge in involving people in such initiative, the participants agreed this would be asking people to organize such projects. Problems that may arise could possibly be resources, access to resources, understanding how to handle the resources, trainings, confidence and having a sense of belonging.

The participants agreed that the potential of the internet is critical in shaping and building the foundation of projects. The internet and other digital technologies, when citizen scientists have access to them, is a possibility that must be exploited.

"Digital technologies can be both positive and negative. They can start by waking up the interest and lead to people directly contributing to the way the technology is created and shaped. For example, the history of this neighborhood was gathered through the people and their collective stories. An archive was created and suddenly the entire history of the area was documented. Thanks to the citizens, people who participated."

Another participant added that there is *"a double edification that can take place."*

A participant offered an example of how digital technologies offered a shift in the direction the research took. *"Different professional researchers were collecting stories about an archeological site but the stories of the people were absent. The research, in my opinion was*

limited. Through the digital technologies we see the change, people can offer their stories to the professionals and, in this example, the data was stronger."

The types of digital technologies that citizen scientists can use, was discussed. There was an agreement that TV and media contribute a lot to the cultural heritage of a community and country. Through their programming and commissioned projects, the medium offers a way for citizens to engage with Cultural heritage content. There is a risk when using these tools. A couple of participants stated that there must be a balanced approach to digital technologies. There is an agreement by all that tools can help and allow many people from various backgrounds, even those that are often excluded and marginalized, get involved and offer an opinion or contribute to the investigation(s). The digital tools cannot be the central point. The participants all stressed that there has to be a balanced approach to gathering data as it can either isolate or create community. One participant said that writing, letters and telegrams were a huge way that people shared their knowledge and were included in previous projects.

Best practice digital technology tools that can be used or that they personally use in their own work are:

- a) Computers, phones, music CD's, DVD's, informal talks that incorporate digital technologies, Internet, specifically YouTube and Skype. Skype allows people to share knowledge, engage and contribute.
- b) Social media can be used to recruit and engage with various citizens from various socioeconomic backgrounds and ages, and offers an immediate way to contribute.

The participants agreed that there is a plurality and democracy that can take place with the use of digital technology. It is a form of democracy which can lead to immediate changes and shifts. The internet can recruit and engage with many instantly.

Activists

The focus group by the National Achieves in Sweden was held in Stockholm, Sweden, on the 18th of December 2014 in the National Archives and was composed of 5 activists.

Despite the limited number of participants, both local/regional and central/national levels of activist organisations were represented. The opinion of the organisers was that the number of participants did not affect the outcome in any substantial way. The idea with the Stockholm focus group was to reach the Swedish organisations which are very strong compared with other countries. During the group meeting there were a specific discussion concerning the international situation, with the purpose to get an idea how general the participants view point were and what strategies that are used by activist organisations in different countries.

A first reaction from all the participants was (after looking at a video about citizen archivists produced by the National Archives and Records Administration in the USA) that Sweden, obviously, is in advance of the USA when it comes to citizen science/research in archives. In Sweden, activist (i.e. genealogical) societies are organising these kinds of activities themselves. Obstacles may consist of a lack of financial and technical resources and sometimes also the attitudes of the cultural heritage institutions.

The general pattern, as the participants see it, is that citizens normally participate in research activities through their local or regional societies. The cultural heritage institutions are seldom first on stage in these topics.

One striking limitation in today's work of the cultural institutions (at least in Sweden) is their habit to communicate with researchers through folders and fact sheets placed in their reading rooms. Using social media would be a more natural way to communicate. As an example, the National Archives of Sweden have about 1 million unique visitors per year on its Internet sites but only about 30 000 visitors in its 13 reading rooms spread all over the country.

The most useful outcomes of organising citizen science projects are, from the perspective of a cultural heritage institution:

- increased interest in the institution and its collections/holdings;
- more work will be done;
- an opportunity to engage competences that are normally not available internally.

The discussion showed that it is obvious that the activist organisations (genealogical societies) in Sweden see themselves as an important part of the knowledge society with an ability to participate in citizen research projects, mainly crowdsourcing initiatives. If there are no cultural heritage institutions in place (or not willing) to support them, they have the strength to organise and run some of these projects themselves using cultural heritage institutions as "a source for crowding".

It did not become clear if this is the case in other Member States as well or in other countries around the world. In any case, genealogical societies and other activist organisations represent a strong movement that is using different strategies for reaching their goals: in Sweden by organising themselves in a nation wide federation strong enough at a political level to be recognised as an important partner to cooperate with or to listen to; in some other countries by using media (like TV programmes about amateurs digging for archaeological remains in their neighbourhood) or connecting themselves to research projects or programmes at universities with high level of awareness (like 1st world war photos and personal letters).

The drivers behind private persons taking part in citizen science projects are normally:

- reward of some kind (could be small, symbolic and of less monetary value);
- personal interest;
- idealism (helping the local society in some way, religious duty, etc.);
- that the results could be used in the person's private research.

The conditions for organising citizens' research activities (becoming obstacles if they are not fulfilled) are mainly:

- the results of the activities have to be open for all to use ("open source");
- the technical facilities have to be in place from the beginning and also easy to use;
- the planning of the activities has to be made in cooperation with citizens research representatives, in order to incorporate their knowledge right from the beginning.

In earlier days most of the knowledge and expertise connected to the cultural heritage institutions holdings and collections were held by the institutions' own staff members. Today, with more and more of these the institutions' data and metadata available on the Internet, important parts of this knowledge and expertise are located outside the institutions, in the hands of users who also advance it by using different kinds of IT tools. An important issue for

the cultural heritage institutions therefore is how to harvest this increasing external knowledge and expertise and make use of it in their internal work.

It was discussed how the cultural heritage institutions could open up for more initiatives in citizen science. Examples of projects were mentioned where activist organisations, the academy and archives cooperated.

All agreed, including the Director General of the National Archives, that the number of “windows of opportunities” for citizen science has to be greater than today. The cultural heritage institutions also have to express their responsibility for new initiatives in this field. Otherwise other players will take the lead, and they will do it regardless of whether the results will gain the interest of these institutions or not.

3.3 QUESTIONNAIRE FOR CH INSTITUTIONS

An online questionnaire was designed and developed to evaluate the involvement of cultural heritage institutions with projects that involve citizen scientists and, to a lesser extent, crowdsourcing activities.

The questionnaire was launched on 4th December 2014 and closed on 22nd December 2014. It attracted 85 responses from 23 countries (19 European, 2 from North America and 2 from Asia).

The questionnaire aimed to collect data which would help to get insights into:

- the current level of awareness on citizen science in memory institutions;
- the patterns of involvement of cultural heritage institutions in citizen science;
- the attractiveness factors seen by cultural heritage professionals;
- the need of specific tools which facilitate citizen science deployment in this specific setting;
- the awareness and interest in using citizen science in domains such as digital cultural content for creativity.

There are several aspects of the methodology of this study which deserve a special mention:

- The survey explores in parallel citizen science and crowdsourcing. This was a topic discussed at length within the consortium. Taking into account the fact that in many cases there is a confusion between these terms, and also that crowdsourcing gained popularity in the cultural heritage sector, the project decided to make use of both concepts in the survey.
- For the first time we are aware of, a survey on citizen science includes questions which allow comparing the outcomes of this questionnaire with previous surveys on citizen science.
- The survey also allows comparing the collected data with the outcomes of the focus groups; in this sense, even if it was not included originally in the project workplan, it complements very well the work of WP2 (Requirements gathering) and WP3 (Designing a roadmap).

The online questionnaire, which will be presented in more detail in D2.2, confirmed the confusion between citizen science and crowdsourcing and showed a generally positive attitude towards the use of citizen science in the digital cultural heritage sector.

3.4 SUMMARY OF THE DISCUSSIONS HELD DURING WORKSHOP IN MALTA

The workshop on user requirements was held in Malta between the 25th and the 27th of November 2014. Other than project partners, local Maltese professionals who form part of the cultural heritage institutions were invited.

3.4.1 Digital heritage stakeholders

As already mentioned before, local Maltese cultural heritage professionals and policy makers were present at the workshop and were eager to voice their opinions and give out their recommendations to improve our research. Below are some of the key points that were raised in the discussion that took place on the second day of the workshop:

- Real accessibility needs to be available, not a theoretical one. The findings and results need to be shared with the community, with which a connection needs to be built and maintained.
- When presenting the data, or connecting to the general public, one must not be too technical, specific, or academically snobbish since this might repel the people one is trying to connect with.
- A key factor to remember is that cultural heritage belongs to the people – the job of cultural heritage institutions is to protect the embodiment of our culture and present it back to the people.
- An issue that arose with great enthusiasm during the workshop was the element of FUN. Fun has the capability to make an activity a good experience which would help increase the popularity and would encourage people to take part in it and to disseminate it.
- Getting the commitment from the government in the aid of these institutions would also be a plus.
- For any endeavor making use of citizen science to succeed, three key factors need to be connected:
 1. Research
 2. Institution
 3. Citizens
- Artifacts or data which embody a community's cultural heritage need to be equally accessible to everyone. No curators or directors should deem themselves the exclusive owners of such a collection.
- Citizens should never be considered as a subject in the research, or as a source. Their role should be that of an active participant in the research.

Amongst these and other comments that were voiced during the discussion, multiple people shared one common thought; that they were all eager to see the results of the Civic Epistemologies project.

3.4.2 Stakeholders providing technological infrastructure

A discussion on the technological infrastructure took place during the workshop, throughout which these issues were brought up:

- A basic framework needs to be developed which can then be adapted and reworked depending on the nature of the citizen science project that is being undertaken. This needs to be produced as a software or application.
- Constant support for the software needs to be available to whoever is using it.
- A serious issue that arose was the way users should be authenticated. A simple login via Facebook might not be enough, but users generally dislike creating and using additional accounts.
- In most of the use-cases access to data and meta-data storage, access and sharing space and solutions as well as collaboration tools is needed. Common, shared data space allow overcoming the limitations of end-user storage systems and enable collaboration on the shared and easily accessible data.
- Due to the fact that citizen science and crowd sourcing participants typically are not the IT experts convenient and easy to use interfaces are expected, preferably based on the Web applications and portals. Access from mobile platforms is also welcome.
- Scalable solutions at the e-Infrastructure side are necessary, that address wide range of the web-based collaboration use-cases, starting from small initiatives involving local community, up to those that address the large, national or cross country project.
- Dynamic scale-out feature at the infrastructure side may be necessary to address the changing needs of the service whose popularity is expected to grow significantly (and rapidly). Importance of such mechanisms was demonstrated several times in past – websites that attracted the attention of many users over a short period experienced issues with availability and heavy load, which resulted in bad user experience.
- From the course of the e-Infrastructure panel it might be concluded that articulating the e-Infrastructure related needs at the technical level is difficult for the CH scientists and activists. Therefore the dialog among e-Infrastructure providers and CH community must be conducted, including explaining technical offerings and opportunities on one hand (possibly including demonstrations, showcases as well as providing service and tools registries) and translating the high-level expectations to the service functionality and features on the other hand.

4 CONCLUSIONS

The focus groups, online questionnaire and discussions held during the workshop in Malta all confirm that citizen science is a vibrant domain which enjoys interest from various stakeholders. In deliverable D2.2 the various points of view identified in the case studies will be summarized and formalized into a set of requirements that will guide the development of the Roadmap for broadening e-Infrastructure deployment to support citizen researchers in digital culture.

Furthermore, D2.2 will include a comparative picture between citizen science in digital heritage and in the sciences.

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ANNEX 1. LIST OF WORKSHOP PARTICIPANTS

Project Participants:

1. Anders Nordström
2. Antonella Fresa
3. Árpád Maczelka
4. Börje Justrell
5. Daniela Azzopardi
6. Edel Jennings
7. István Moldovan
8. Manuele Buono
9. Mauro Fazio
10. Micheal Jankowski
11. Milena Dobrev
12. Neil Forbes
13. Roxanne Wyns
14. Stefan Rohde-Enslin (apologies last minute)
15. Sy Holsinger
16. Tomi Illijias
17. Alexander Grum

Non-Project Participants:

1. Andrew Alamango (Lost Voices project)
2. George Cassar (Friends of NA)
3. Georgina Portelli (Cultural Policy Committee)
4. Ivan Ellul (National Archives)
5. John Ashley Burgoyne (University of Amsterdam, The Netherlands)
6. Leonard Callus (National Archives)
7. Theresa Zammit Lupi (Notarial Archives)
8. Toni Sant (St James Cavalier Centre for Creativity)
9. William Zammit (University of Malta)

Remote Participants:

1. Catherine Jones (Luxembourg)
2. Fermin Serrano Sanz (Spain)
3. Lorna Hughes (Wales)

ANNEX 2. FOCUS GROUP PROTOCOL

The Civic Epistemologies focus group protocol is designed for two purposes:

- 1) to prepare the moderators to conduct focus groups on-site;
- 2) to provide a general understanding on the characteristics and parameters of the study and the identified links to the web questionnaire targeting professionals from cultural heritage institutions.

The suggested structure of the focus groups follows.

1. Introduction to the study
2. Pre-questionnaire and consent form
3. A teaser on citizen science
4. Discussion 1 (first thoughts)
5. Assignment
6. Discussion 2 (further thoughts)
7. Conclusion

The document elaborates further on the separate sections and clarifies what are the specific aims. This approach was chosen in order to align the team efforts as much as possible and guarantee a sound methodological approach and the necessary conditions to analyse the outcomes also on contrastive basis.

Requirements:

- A projector from PC or laptop with internet access.
- OPTIONAL. There is at least one video camera (if we want to produce a video/take photographs)

Participants are not expected to use any devices and best should be prompted to put their mobile phones on silent.

The whole exercise will take up to 2 hours.

INTRODUCTION TO THE STUDY

Objective	This part provides a broad introduction to the research. It should orientate the participants but not be so specific as to influence the results. It should also establish a friendly and collaborative atmosphere.
Actors	<ol style="list-style-type: none"> 1) Moderator(s) 2) Assistant taking note (and distributing and collecting forms) 3) Video operator 4) Up to 12 participants in the focus group

Duration	5-10 min
Example	<p>Hello, my name is X and we are here to discuss your view on citizen science and its place in cultural heritage institutions. I will be moderating the focus group today.</p> <p>This is an activity within the EC-funded Civic Epistemologies project which aims to develop a roadmap on the application of citizen science in the cultural heritage institutions across Europe.</p> <p>Why are we organising this group? We hope to learn about the potential you see in citizen science and your views on its potential use – and even if this is something new for you we will provide sufficient background information to help our discussion.</p> <p>In our discussion here are no right or wrong answers – we are exploring an area which is quite new and we want to learn from you.</p> <p>You are part of a set of focus groups which are held in three countries, Sweden, UK and Malta – in this sense we also try to capture a diversity of views.</p> <p>Therefore, we are going to start with each of you doing some form filling. This is so that we can make you all into statistics and make the methodology work.</p> <p>Then we will continue providing some information on citizen science and we will have a discussion around the topic.</p> <p>After this we will break you into groups to discuss a scenario.</p> <p>OPTIONAL. As you see we are making a video of our session; this will be used only by our colleagues who are not able to be in Valletta/Stockholm/Coventry today but also would like to learn from your experience.</p>

DISTRIBUTION OF PROJECT INFORMATION SHEET AND FILLING IN OF CONSENT FORM AND PRE-QUESTIONNAIRE

Objective	To gather quantitative data which can be mapped to the online survey; and to gather initial data on the confidence of the participants in the domain of citizen science and their attitudes towards cultural values.
Actors	1. Moderator (to explain again that this needs to be filled in) 2. Assistant (who will give and collect forms)
Duration	10 mins

Demographic Data	Notes
Country of Residence: _____	
Country of origin: _____	
Age:	<i>These data will be used to compare responses to the data from the web questionnaire</i>
<input type="checkbox"/> 20-30	
<input type="checkbox"/> 31-40	
<input type="checkbox"/> 41-50	
<input type="checkbox"/> 51-60	
<input type="checkbox"/> 61+	
What is your role?	
<input type="checkbox"/> Policy maker	
<input type="checkbox"/> Academic	
<input type="checkbox"/> Member of a citizen rights-related activist organization	
<input type="checkbox"/> Unprofessional researcher	
<input type="checkbox"/> Other – please specify_____	
Interest in archive, library, or museum collections	
How often do you use archive, library, or museum collections?	
<input type="checkbox"/> Frequently (Multiple times a month)	
<input type="checkbox"/> Often (Once a month)	
<input type="checkbox"/> Rarely (A couple of times a year)	
<input type="checkbox"/> Irregularly	
What is your main reason for using archives, libraries, or museum collections?	<i>General attitudes and role in the subject domain</i>
<input type="checkbox"/> Personal reasons	
<input type="checkbox"/> Professional reasons	
Which of these statements apply to your experience using archive, library, or museum collections?	
<input type="checkbox"/> Easy to navigate	
<input type="checkbox"/> Comprehensive	
<input type="checkbox"/> Efficient	
<input type="checkbox"/> Lacking in data	
<input type="checkbox"/> Slow to find data	
<input type="checkbox"/> Finding materials is difficult	
<input type="checkbox"/> Helpful staff	

<p>Familiarity with Citizen Science</p> <p>Were you familiar with the term “Citizen Science” before coming here today?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Have you ever been personally involved with projects using citizen scientists?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If your answer was no, would you be interested in participating in such a project? If your answer was yes, would you participate in such a project again?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not sure</p>	<p><i>Establishing levels of preliminary knowledge and interest</i></p>
--	---

A TEASERS ON CITIZEN SCIENCE

Objective	The idea is to show a 2-3 minutes long video which captures main ideas about citizen science. We have two suggestions but others are welcome: <ul style="list-style-type: none"> http://www.youtube.com/watch?v=-OxO0eOnntE – this one gives an overview of citizen science but does not really show cultural heritage related examples http://www.youtube.com/watch?v=Ku8kz75e6Zw – citizen archivists – relevant to the CH domain (but from the USA)
Actors	1. Moderator 2. Assistant (collects questionnaires).
Duration	5 min
Example	Thank you for filling in the questionnaires. Now I will be showing you a short video about citizen science.

DISCUSSION 1 (FIRST IMPRESSIONS)

Objective	This discussion is common for all groups and it aims to capture the perception on citizen science before the discussion task.
Actors	1. Moderator 2. Assistant (distributes and collects 2 forms, Appendix 4 and 5).
Duration	Up to 20 min

Notes	The table below suggests how to organise the discussion. This discussion is common for the three groups. We have three columns in the table – with a question, a possible rewording of this question in the cases when the group remains silent, and an explanation what do we hope to achieve including this question.
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No	Question	Possible rewordings	Comments
1	We just have seen the short video about citizen science. What do you think about it?		“ice-breaker” question
2	Is this an area in which you already have some experience? If yes, what exactly was your experience?		Poll of hands. Capturing the degree of personal involvement.
3	What do you think is most useful from a cultural heritage institution perspective in organising such projects?		This gets us into one the key issues – the role/place of citizen science; to help this we have 2 helping aids with questions 4 and 5.
4	Let us fill in some bubbles Citizen science mostly could help cultural heritage institutions to... See Appendix 4		The bigger size unconsciously would show the preference.
5	On piece of paper – checking semantic differentials with a scale from 1 to 10 Citizen science applications in CH institutions could... See Appendix 5		Trying to identify where citizen science is seen to be most helpful in the CH context.

ASSIGNMENT

Objective	The aim is to split the group into two smaller groups which will discuss the same scenario. Scenarios differ within the 3 targeted communities.
Actors	1. Moderator observes one subgroup 2. Assistant observes second subgroup

Duration	Up to 30 min
Notes	Each group should be provided with a flip chart where several areas are marked as below (1-5 for each scenario).

Scenario 1. Policy makers/CH managers (Malta)

One of the cultural heritage institutions in Malta is planning to introduce a citizen science project which involves unprofessional researchers to transcribe 19 and early 20 century texts. The volume of the work would require some 20 person years for a staff member of the institution. What do you think would be the best way forward to organise such an initiative?

1. How do you imagine such initiative will be implemented – for example where the unprofessional researchers are going to work; are they going to handle original documents or digital copies; who would own the data they produce? What would be the most efficient way to recruit, train and monitor the unprofessional researchers?
2. How the CH institution will monitor the quality of the citizen researchers' work?
3. What policies need to be in place in the institution and in the cultural heritage sector in general?
4. What technological infrastructure would be necessary? (for example devices and special software tools)
5. What are the main obstacles you can imagine to organise such an initiative? List up to three obstacles.

Scenario 2. Citizen scientists (Spain)

One of the cultural heritage institutions in Spain is planning to introduce a citizen science project which involves unprofessional researchers to transcribe 19 and early 20 century texts. The volume of the work would require some 20 person years for a staff member of the institution. What do you think would be the best way forward to organise such an initiative?

1. What is the best way to involve the unprofessional researchers - where are they going to work; are they going to handle original documents or digital copies; who would own the data they produce?
2. Who will monitor the quality of the work performed?
3. What is the biggest benefit for these unprofessional researchers?
4. What incentives would help a long-term involvement of such volunteers?
5. What are the main obstacles you can imagine to organise such an initiative? List up to three obstacles.

Scenario 3. Activists (Sweden)

One of the cultural heritage institutions in Sweden is planning to introduce a citizen science project which involves unprofessional researchers to transcribe 19 and early 20 century texts. The volume of the work would require some 20 person years for a staff member of the institution. What do you think would be the best way forward to organise such an initiative?

1. How do you imagine such initiative will be implemented? Will the cultural heritage institution manage all aspect or collaborate with other entities? If collaboration would be beneficial, what entities would be helpful and how exactly?
2. What could be the specific input of citizen organisations to this initiative?
3. How would be monitored the quality of their work of the citizen scientists?
4. What policies need to be in place in the institution and in the cultural heritage sector in general?
5. What are the main obstacles you can imagine to organise such an initiative? List up to three obstacles.

DISCUSSION 2 (FURTHER THOUGHTS)

Objective	The previous task made people think deeper about citizen science and this probably will change some of the initial opinions.
Actors	1. Moderator 2. Assistant (distributes final questionnaire)
Duration	Up to 30 min
Notes	This phase starts with asking both sub-groups to summarise their findings very briefly. The discussion starts as free-flowing, picking on points which got different interpretations by both groups. Distribute final questionnaire (See Appendix 6).

Conclusive questions:

1. Are you aware of any technical tools which can help citizen science projects? Have you personally used any? (If not, what tools you would consider useful?)
2. What actions could attract more interest to citizen science projects related to cultural heritage?

CONCLUSION

Objective	Closing the study.
Actors	Moderator
Duration	Up to 5 min
Notes	Thank you for your participation, if you wish to keep in touch with the project please provide your contact details. You could monitor the progress of the project on www.civic-epistemologies.eu OPTIONAL. It is possible to take a group photo for the Civic Epistemologies newsletter/website

APPENDIX 1. PARTICIPANT INFORMATION SHEET



Summary

The CIVIC EPISTEMOLOGIES project is about the participation of citizens in research on cultural heritage and humanities. ICT are powerful drivers of creativity, but specific technical know-how is still generally lacking in the creative industries sectors. In addition, humanities scholarship is not yet taking full advantage of ICT to engage with wider audiences. New skills are needed to enable the cultural sector to grasp employment and commercial opportunities.

The project aims to develop and validate a Roadmap for the use of e-infrastructures to support the participation of European citizens in research on cultural heritage and digital humanities. Critically, the Roadmap will offer support for improved social cohesion arising from the sharing of knowledge and understanding of Europe's citizens common and individual cultures. The partners are committed to the values of open data, open source and open innovation.

Objectives

- > Analyze the needs of researchers, citizens, cultural institutions and creative enterprises
- > Develop a new Roadmap based on key findings
- > Validate the Roadmap through one Pilot in Ireland and two case studies in the UK
- > Encourage Research institutions to establish clear protocols for citizen engagement and shared research goals where achievable
- > Ensure widespread impact of the project findings with a strong communication and dissemination plan
- > Establish a durable network of common interest to connect cultural institutions, research bodies, creative industries, e-infrastructures and citizen associations

Action plan

The project consists of five work-packages:

- WP1 - Project Management
- WP2 - Identification of requirements
- WP3 - Roadmap development
- WP4 - Pilot and Case Studies
- WP5 - Dissemination, communication and sustainability



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 632694

Project acronym: CIVIC EPISTEMOLOGIES

Project theme: INFRASTRUCTURE-2013-2

Start date: 01/08/2014

Duration: 16 months

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EU Grant: 485,612 EURO

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Coventry University (UK)

University of Malta (M)

Poznań Supercomputing and Networking Center (PL)

Waterford Institute of Technology (IE)

Arctur d.o.o. (SI)

European Grid Initiative Foundation (NL)

Keywords:

citizen scientists, digital cultural heritage, digital humanities, e-infrastructure, creative industries, skills development, standards, metadata, strategic research agenda, knowledge economy

Events:

3 focus groups; 2 case study meetings; 3 workshops; 1 final conference

Research activities

While the academic research lifecycle and the potential offered by e-infrastructures and virtual research environments to support research have attracted significant attention over the last decade, an understanding of how citizens can be involved in research and creativity within the digital domain is still in its infancy. Models of academic research lifecycles, mapped to digital infrastructures, could help to some extent because the nature of academia and citizens involvement and their need of support differ considerably. Initial research carried out on citizen science has typically not addressed the generic lifecycle but has tended to concentrate on specific activities. Further work is necessary to refine those tasks, and to map how they correspond to existing tools, which can be used within e-infrastructures. This issue will be addressed in WP2, WP3 and WP4 of the CIVIC EPISTEMOLOGIES project.

A rich dissemination programme, including a major international conference, will ensure that the project has maximum outreach and impact.

User communities

The outreach activities of CIVIC EPISTEMOLOGIES aim to contribute to the creation of the network of actors (called in the project the Network of Common Interest) who are willing to commit themselves to the implementation of the Roadmap developed by the project. The project targets the whole value-chain, from public funding bodies through to the cultural content owners, publishers and creative industries, e-infrastructure providers and end users (researchers, educators, students, practitioners and citizens in general).

The following are the key targets for the dissemination of the CIVIC EPISTEMOLOGIES project's results:

- > Ministries and state agencies with responsibility for e-infrastructures;
- > E-infrastructure providers, usually National Research and Education Networks (NRENs), grid and cloud providers (e.g. EGI);
- > Policy-making bodies which map out the future of e-infrastructures on behalf of the European Commission, of national government and of others. Good examples are e-IRG and ESFRIC;
- > Cultural heritage organisations, including Ministries of Culture and memory institutions (museums, libraries, archives, etc.);
- > Organisations which coordinate and represent memory institutions (e.g., NEMO, EMF, ICOM, EBUOA, CENL);
- > Research organisations that provide technical and expertise advice to cultural stakeholders;
- > Cultural and creative industries;
- > Other projects in the digital culture, digital humanities, e-infrastructures and policy arenas.



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APPENDIX 2. SAMPLE CONSENT FORM

<Name of the institution organising the focus group>

Consent form for Project Participants

Project title: Civic Epistemologies

I agree to take part in the above EC-funded research project. I have had the project explained to me and I have read and understood the Information Sheet, which I may keep for records. I understand that agreeing to take part means that I am willing to:

- Be interviewed by the researcher
- Allow the interview to be photographed / video taped / audio taped
- Make myself available for a further interview should that be required

I understand that any information I provide is confidential, and that no information that I disclose will lead to the identification of any individual in the reports on the project, either by the researcher or by any other party.

I understand that I have given my approval for my name and/or the name of my country of nationality, as well as the name of my workplace to be used in the final report of the project, and in further publications.

I consent to the audiotapes being shared with other researchers and interested professional parties.

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

I consent to the processing of my personal information for the purposes of this research study. I understand that such information will be treated as strictly confidential and handled in accordance with the Data Protection Act.

Name: _____

Signature: _____

Date: _____

APPENDIX 3. PRE-QUESTIONNAIRE

Demographic Data

Country of Residence: _____

Country of origin: _____

Age:

- ☐ 20-30
- ☐ 31-40
- ☐ 41-50
- ☐ 51-60
- ☐ 61+

What is your role?

- ☐ Policy maker
- ☐ Academic
- ☐ Member of a citizen rights-related activist organization
- ☐ Unprofessional researcher
- ☐ Other – please specify _____

Interest in archive, library, or museum collections

How often do you use archive, library, or museum collections?

- ☐ Frequently (Multiple times a month)
- ☐ Often (Once a month)
- ☐ Rarely (A couple of times a year)
- ☐ Irregularly

What is the main reason for you to use archive, library, or museum collections?

- ☐ Personal reasons
- ☐ Professional reasons

Which of these statements apply to your experience using archive, library, or museum collections?

- ☐ Easy to navigate
- ☐ Comprehensive
- ☐ Efficient
- ☐ Lacking in data
- ☐ Slow to find data
- ☐ Finding materials is difficult
- ☐ Helpful staff

Familiarity with Citizen Science

Were you familiar with the term "Citizen Science" before coming here today?

- ☐ Yes
- ☐ No

Have you ever been personally involved with projects using citizen scientists?

- ☐ Yes
- ☐ No

If your answer was no, would you be interested in participating in such a project? If your answer was yes, would you participate in such a project again?

- ☐ Yes
- ☐ No
- ☐ Not sure

APPENDIX 4. ADDITION A TO THE DISCUSSION ON FIRST IMPRESSIONS

Please fill in these bubbles:



Citizen science mostly could help cultural heritage institutions to...

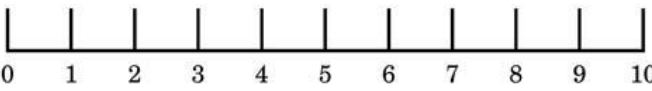
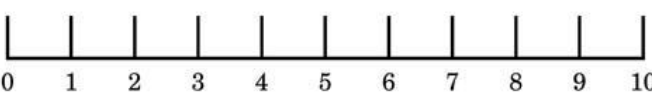
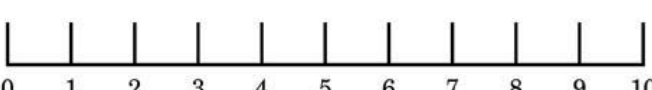

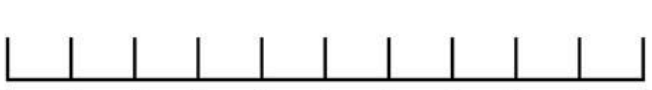


Add more bubbles if you have further ideas!

APPENDIX 5. ADDITION B TO THE DISCUSSION ON FIRST IMPRESSIONS

In which areas citizen science has the potential to be most helpful for CH institutions (0 = no potential to be helpful, 10 = extremely helpful)

Attracting more visitors to the CH institution	
Saving CH institutions' staff time on tasks given to member of the public	

Facilitating new discoveries on the CH institution collections/artefacts	
Attracting interest of children and young adults	
Providing better service to professional researchers	
Bringing new technological solutions to the CH institution	
Keeping the CH institution up to date with newest trends in user engagement	

APPENDIX 6. FINAL QUESTIONNAIRE

Potential of Citizen Science

Do you think that citizen science should be used more actively within the cultural heritage context?

- ☐ Yes
- ☐ No
- ☐ Not sure

Would you seek personal involvement in such initiatives?

- ☐ Yes
- ☐ No
- ☐ Not sure

Do you think that taking part in such initiatives contributes to better quality of life of the citizens?

- ☐ Yes

- ☐ No
- ☐ Not sure

What would help to attract more interest to citizen science in this domain?

Would you like to be informed on future events organised by the project Civic Epistemologies?

- ☐ Yes – please provide your email _____
- ☐ No

Thank you for your participation!

ANNEX 3. ONLINE QUESTIONNAIRE

Cultural Heritage Institutions and Citizen Science

Page 1 of 3

Page description:

ID 30

This questionnaire is part of the research done within the Civic Epistemologies project. It will help to develop a roadmap for citizen science related to cultural heritage.

ID 31

1. What type of institution do you work in? *

☐ Cultural Content Aggregator

☐ Archive

☐ Library

☐ Museum

☐ Art Gallery

☐ Other

ID 32

2. How many years has the institution been operational? *

- ☐ Less than 10 years
- ☐ 10 to 50 years
- ☐ Over 50 years

ID 33

3. Can you give an example of participation of citizens in a research project which impressed you? *

ID 34

4. Are you familiar with the terms "Citizen Science" and "Crowdsourcing"? *

- ☐ Yes, with both
- ☐ Yes, with "crowdsourcing" only
- ☐ Yes, with "citizen science" only
- ☐ No
- ☐ I have heard of the terms, but I do not know exactly what they mean

ID 35

5. Do you think that 'citizen science' and 'crowdsourcing' share the same meaning? *

☐ Yes

☐ No

☐ Comment

ID 36

6. Does your institution have any experience in using citizen science/crowdsourcing? *

☐ Yes

☐ No

☐ Not sure

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 37

7. Could you post a link to a web page presenting the citizen science/crowdsourcing project(s) of your institution, or alternatively provide a short description? *

ID 38

8. How could citizen science/crowdsourcing projects be helpful to your institution? *

- ☐ Improve our services
- ☐ Expand our knowledge on a certain topic
- ☐ Aid in the progress of an existing research
- ☐ Help initiate new research
- ☐ Improve the engagement of visitors/patrons with our collections
- ☐ Speed up some of our activities such as:
- ☐ Other

ID 39

9. What infrastructures do you have in place which could be employed for such projects? *

- ☐ New or additional data analysis tools
- ☐ Smartphone/mobile apps
- ☐ New or improved websites
- ☐ Video for training
- ☐ Online data entry
- ☐ Facebook accounts
- ☐ Mapping capabilities
- ☐ Database improvements
- ☐ Support materials
- ☐ None
- ☐ Not sure
- ☐ Other

ID 40

10. What tools are missing or needed to facilitate the process? *

- ☐ Mobile applications for data entry Real
- ☐ time and dynamic visualisations
- ☐ Animated and interactive maps
- ☐ Use of GPS units bu citizens
- ☐ Decision support recommendations for management
- ☐ activities Google Earth/3G technology
- ☐ Real time 3D visualisation tools
- ☐ Semantic annotation tools
- ☐ Complete revision of project database, website and data entry
- ☐ application Web based analysis tools for digital photos
- ☐ Other

ID 41

11. Which communication channels would you consider most helpful in citizen science/crowdsourcing projects? *

- ☐ Website
- ☐ RSS
- ☐ Email
- ☐ Conference calls or webinars
- ☐ Print publications
- ☐ Research articles
- ☐ Blogs
- ☐ Forums
- ☐ Photo galleries
- ☐ Maps
- ☐ Graphs and charts
- ☐ Animated or interactive data visualizations
- ☐ Data querying and summary tools
- ☐ Social media (e.g., Twitter, Facebook)
- ☐ Other

ID 42

12. Does your institution have policies in place regulating citizen science/crowdsourcing projects?

*

- ☐ Yes
- ☐ Policy is currently under development
- ☐ We have not thought of such policies yet

Page description:

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 43

13. Do you think that citizen science/crowdsourcing projects already implemented by your institution resulted in an increased appreciation by participants of the importance of their contribution to the project? *

- ☐ Yes
- ☐ No
- ☐ Not sure

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 52

14. Did you have to provide additional training to staff members involved in citizen science projects? *

- ☐ Yes, in organising events
- ☐ Yes, in communication to volunteer communities
- ☐ Yes, in outreach to the media
- ☐ Other
- ☐ No
- ☐ Not sure

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 53

15. How did you share the progress of the citizen science project? *

- ☐ In the press
- ☐ In publications
- ☐ In an exhibition
- ☐ In research publications
- ☐ On the institutional website
- ☐ Other
- ☐ Not sure

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 44

16. In your opinion, what is the main motivator for citizens to contribute to citizen science/crowdsourcing projects? *

- ☐ Gaining insight into the topic
- ☐ Compensation for participation
- ☐ Networking
- ☐ Social Gathering
- ☐ Contributing to research
- ☐ Opportunity to contribute personal knowledge
- ☐ Other

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 45

17. Did the participants help in expanding the network of citizen scientist by getting other people involved? *

- ☐ Yes
- ☐ No
- ☐ Not sure

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 46

18. What is your impression of the most important benefits for the citizens who participated in the research? Rank them from most important to less important. *

Drag items from the left-hand list into the right-hand list to order them.

Knowledge

Payment

Socialization

Satisfaction from
contributing

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 47

19. From your experience, citizens participating in such initiatives were mostly: *

- ☐ Very satisfied
- ☐ Somewhat satisfied
- ☐ Dissatisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ I do not know

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("Yes")

ID 48

20. What feedback did they give the institution? *

LOGIC Hidden unless: Question "Does your institution have any experience in using citizen science/crowdsourcing?" #6 is one of the following answers ("No", "Not sure")

ID 49

21. What do you think are the main reasons which delay the introduction of citizen science/crowdsourcing projects in cultural heritage institutions? *

- ☐ Lack of knowledge on how to organize such a project
- ☐ Lack of funds
- ☐ Lack of personnel to work with the citizens
- ☐ Lack of technological infrastructures
- ☐ Fear that people will not produce good quality work
- ☐ Fear that people will not be ready to commit to the research
- ☐ Fear that people will not show enough interest in the research
- ☐ Other

Page 3 of 3

Page description:

ID 50

22. Is there a specific citizen science project you are interested in initiating? *

- ☐ Yes, one
- ☐ Yes, several
- ☐ No
- ☐ Comment:

ID 51

23. Would you recruit the citizens directly or outsource the activity to another institution? *

- ☐ Recruit directly
- ☐ Outsource
- ☐ Not sure

Thank You!

ID 1

Thank you for taking our survey. Your response is very important to us. For more information on the Civic Epistemologies project, please visit us at <http://www.civic-epistemologies.eu/>