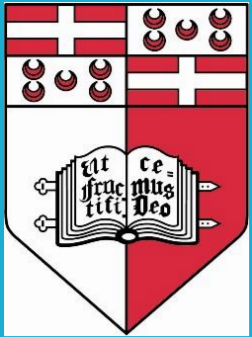


# Citizen Science and its Place in the Modern Memory Institutions



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## Introduction

The Green Paper on Citizen Science commissioned by the EC (2013) defines citizen science as **“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”**.

*The practice of involving citizens in academic research was well established in the 19<sup>th</sup> century. Citizen contribution was instrumental in the development of the Oxford English Dictionary (OED). In 1879, the newly-appointed editor James Murray (see Figure 1) published an appeal, asking for volunteers to read specific books in search of quotations. Some 800 volunteers contributed over the next three years 3,500,000 quotations.*



Figure 1. Sir James Murray before 1910 in the Scriptorium, Banbury Road, Oxford

The project ‘Constructing Scientific Communities: Citizen Science in the 19<sup>th</sup> and 21<sup>st</sup> Centuries’ (2014) is currently studying the historical roots of the citizen science phenomenon.

## Citizen Science in General...

The advancement of ICT, Internet and mobile technologies opens new prospects for bringing together different communities unified by their interest to contribute to research. The number of citizen science initiatives grows rapidly around the globe, and subsequently in an increased body of academic publications discussing various aspects of it as demonstrated in (Dobreva, Azzopardi 2014). The current technological infrastructures facilitate two dimensions of citizen science: **scale** (attracting larger community of citizen scientists than ever before) and **substance of tasks** performed. The current social media culture makes it easy to bring together big groups of people but also the modern technology offers mobile devices and a wide range of tools which could engage citizens in a variety of research-related tasks.

The most typical scenario is the one of citizens directed by professional researchers in studies which revolves mostly around **observation of natural phenomena** and notation in **multiple locations** or across longer time spans. Research domains such as biology and astronomy are particularly prominent in integrating citizen scientists in research (see Figure 2).

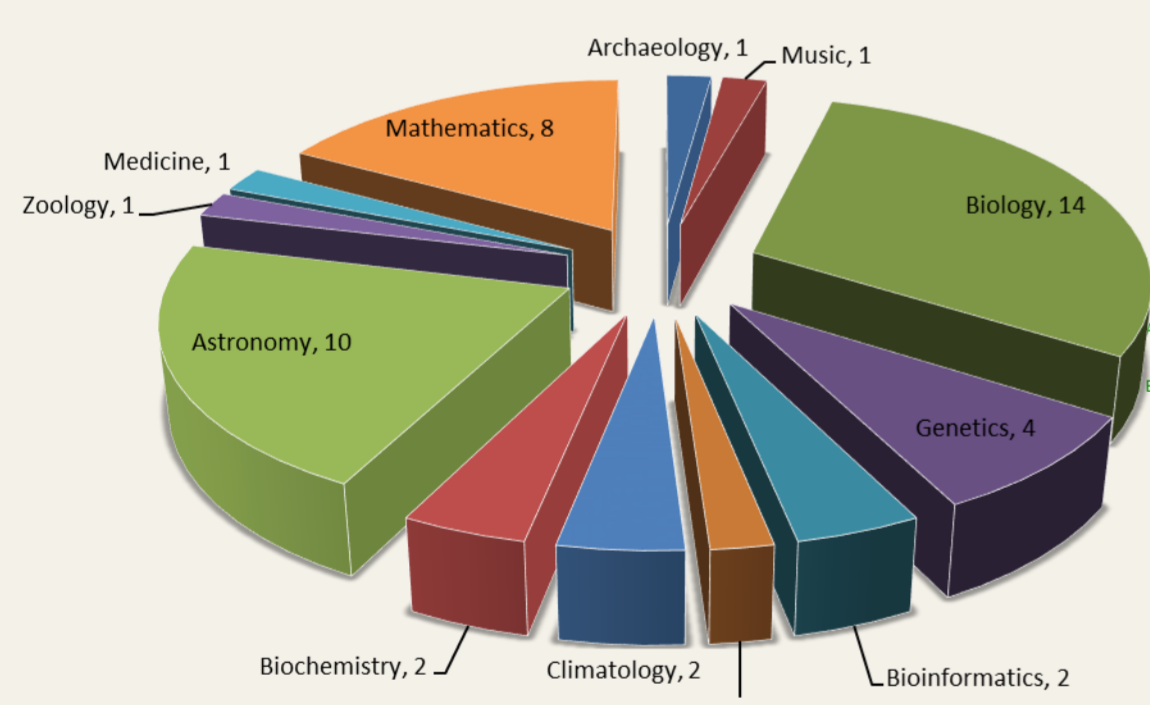


Figure 2. Distribution of 47 citizen science projects across domains, based on (Franzoni, Sauerermann 2014)

## ... and in the Memory Institutions

Use of citizen science across memory institutions (which would mostly address Humanities research) is still not popular. Larger-scale surveys on citizen science applications in cultural heritage institutions respectively are difficult to find, but, such work was systematically done in the last years by Angela Wiggins and Steven Crowston from the Syracuse University in the USA. Wiggins and Crowston (2012a and 2012b) summarise results from 63 surveys completed as a result of 840 emailed requests for participation which were used to create 128 project profiles. The range of activities to which unprofessional researchers contribute in citizen-science projects as suggested by Wiggins and Crowston (2012b) include the following:

1. Define question
2. Gather information
3. Develop hypothesis
4. Design study
5. Data collection
6. Analyse sample
7. Analyse data
8. Interpret data
9. Draw conclusions
10. Disseminate results
11. Discuss results and ask new questions

## Lessons Learnt from Crowdsourcing

Crowdsourcing is more popular in memory institutions. Historical examples like the one with OED are called “proto-crowdsourcing” (see Ridge 2014, p. 5); however all historical examples provided by Mia Ridge can in fact be considered citizen science in the sense that the contribution of volunteers is coordinated and integrated into a research activity by an academic or curator).

A popular classification of typologies of crowdsourcing projects in the memory institutions domain had been made by Oomen and Aroyo (2011). They suggest six different typologies of projects; each one linked to a different kind of study, and respectively tasks:

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 Collections** – Citizens are asked to add 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.

## The Roadmapping Work of Civic Epistemologies

Civic Epistemologies is an EC-funded project which aims to develop a Roadmap which defines the **major steps** to bring citizens, and their **associations**, into the **research processes of the digital cultural heritage**.

It develops a Pilot and Case Studies exploring new creative approaches for the citizens’ engagement with cultural heritage

Cooperation and synergies are established with other initiatives and experiments of co-creation and creative collaboration.

The effort to develop a roadmap aims to assist cultural heritage institutions in starting citizen science initiatives.

The project explored the perception of citizen science among cultural heritage professionals via three focus groups held in Valletta, Barcelona, and Stockholm, complemented by a web survey.

We explored what tools are needed in memory institutions and compared them with previous surveys (see Figure 3).

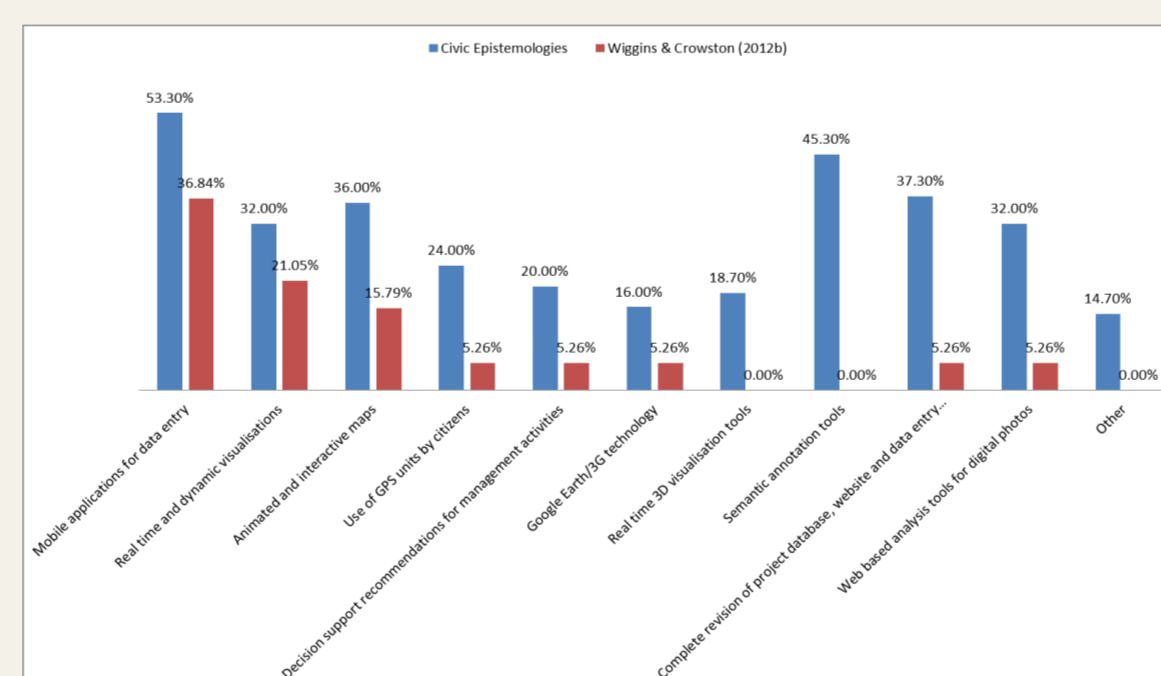


Figure 3. Perception on missing tools according to the web survey of Civic Epistemologies and a study by Wiggins and Crowston

We also started to develop a set of personae which would help to understand the difference in attitudes towards citizen science of various stakeholders from the memory institutions: policy makers, citizen scientists and citizen associations. One example is presented on Figure 4.



*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.*

Figure 4. An example of a persona representing policy makers’ attitudes to citizen science

## Opportunities to contribute to Civic Epistemologies

**CIVIC EPISTEMOLOGIES: Development of a Roadmap for Citizen Researchers in the age of Digital Culture**

Grant agreement: 632694  
INFRASTRUCTURE-2013-2



**There is definitely more scope for using citizen science in the memory institutions. Join us in Budapest, Valletta, and/or Berlin to discuss our roadmap!**

- **Workshop on Innovation in CH institutions**, Budapest 9-10 July 2015
- **19<sup>th</sup> EIPub Conference ‘Scale, Openness and Trust: New Avenues for Electronic Publishing in the Age of Infinite Collections and Citizen Science’**, Valletta 1-3 September 2015, [www.elpub.net](http://www.elpub.net)
- **Final International Conference**, Berlin 12-13 November 2015

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