

# Horizon Europe recommended practices

Antónia Correia, Minho University



# Open Science practices

What?	How?	Mandatory in all calls/recommended
Early and open sharing of research	Preregistration, registered reports, preprints, etc.	Recommended
Research output management	Data management plan (DMP)	<b>Mandatory</b>
Measures to ensure reproducibility of research outputs	Information on outputs/tools/instruments and access to data/results for validation of publications	<b>Mandatory</b>
Open access to research outputs through deposition in trusted repositories	<ul style="list-style-type: none"> <li>Open access to publications</li> <li>Open access to data</li> <li>Open access to software, models, algorithms, workflows etc.</li> </ul>	<ul style="list-style-type: none"> <li><b>Mandatory</b> for peer-reviewed publications</li> <li><b>Mandatory</b> for research data <b>but</b> with exceptions ('as open as possible...')</li> <li>Recommended for other research outputs</li> </ul>
Participation in open peer-review	Publishing in open peer-reviewed journals or platforms	Recommended
Involving all relevant knowledge actors	Involvement of citizens, civil society and end-users in co-creation of content (e.g. crowd-sourcing, etc.)	Recommended

- Open science practices listed in the template for proposals (section excellence>methodology)
- Non-exhaustive list
- Mandatory in all calls: Model Grant Agreement or call requirement; all the rest recommended



# Open Peer Review

# Open Peer Review definitions

A scholarly review mechanism providing **disclosure of any combination of author and referee identities, as well as peer-review reports and editorial decision letters, to one another or publicly at any point during or after the peer review or publication process.** It may also refer to the removal of restrictions on who can participate in peer review and the platforms for doing so. Note that 'open peer review' has been used interchangeably to refer to any, or all, of the above practices.

<https://forrt.org/glossary/open-peer-review/>

[Open peer review] include(s) many aspects of evaluation and quality assessment. We have adopted a broad **working definition of what constitutes a 'peer'** to mean those with expertise or significant interest in a topic. (...) Similarly, peer review also includes **informal responses, questions and comments posted on social media, pre-print servers, e-journals or other places online in response to a given research output.**

Woods, H. B., Brumberg, J., Kaltenbrunner, W., Pinfield, S., & Waltman, L. (2022, February 8). Innovations in peer review in scholarly publishing: a meta-summary. <https://doi.org/10.31235/osf.io/qaksd>

# Open Peer Review

Why is OPR important?

## Six good reasons

OPR helps support the transition to Open Science by making all aspects of the research lifecycle more transparent. OPR offers a number of additional benefits.

Click the plus sign to expand the text box

+ Transparency

+ Speed

+ Reliability

+ Consistency

+ Context

+ Motivation

## Box 1. Open peer review oath.

**Principle 1:** I will sign my name to my review

**Principle 2:** I will review with integrity

**Principle 3:** I will treat the review as a discourse with you; in particular, I will provide constructive criticism

**Principle 4:** I will be an ambassador for the practice of open science

Aleksic J, Alexa A, Attwood TK et al. An Open Science Peer Review Oath [version 2; peer review: 4 approved, 1 approved with reservations]. F1000Research 2015, 3:271 <https://doi.org/10.12688/f1000research.5686.2>



## Open Peer Review

This course introduces you to open peer review (OPR), an emerging practice which is gaining momentum as part of Open Science. Upon completing this course, you will:

<https://www.fosteropenscience.eu/learning/open-peer-review>



# COVID impact on peer review

Technology & Ideas

## A Pandemic Moves Peer Review to Twitter

The coronavirus has transformed how scientific research findings are communicated. Is that good? Will the changes stick?

By Justin Fox

5 de maio de 2020, 16:46 WEST



<https://www.bloomberg.com/opinion/articles/2020-05-05/coronavirus-research-moves-faster-than-medical-journals>



**CASPA** Open Access Scholarly Publishing Association

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### COVID-19 Publishers Open Letter of Intent – Rapid Review

*On 27 April 2020, a group of publishers and scholarly communications organisations announced a joint initiative to maximize the efficiency of peer review, ensuring that key work related to COVID-19 is reviewed and published as quickly and openly as possible. OASPA fully supports this collaborative approach and is pleased to host the Open Letter of Intent below.*

THE ROYAL SOCIETY Hindawi PLOS PeerJ eLife F1000 Research

Ju|ubiquity press open scholarship GIGA SCIENCE Life Science Alliance UCL OPEN ENVIRONMENT The MIT Press

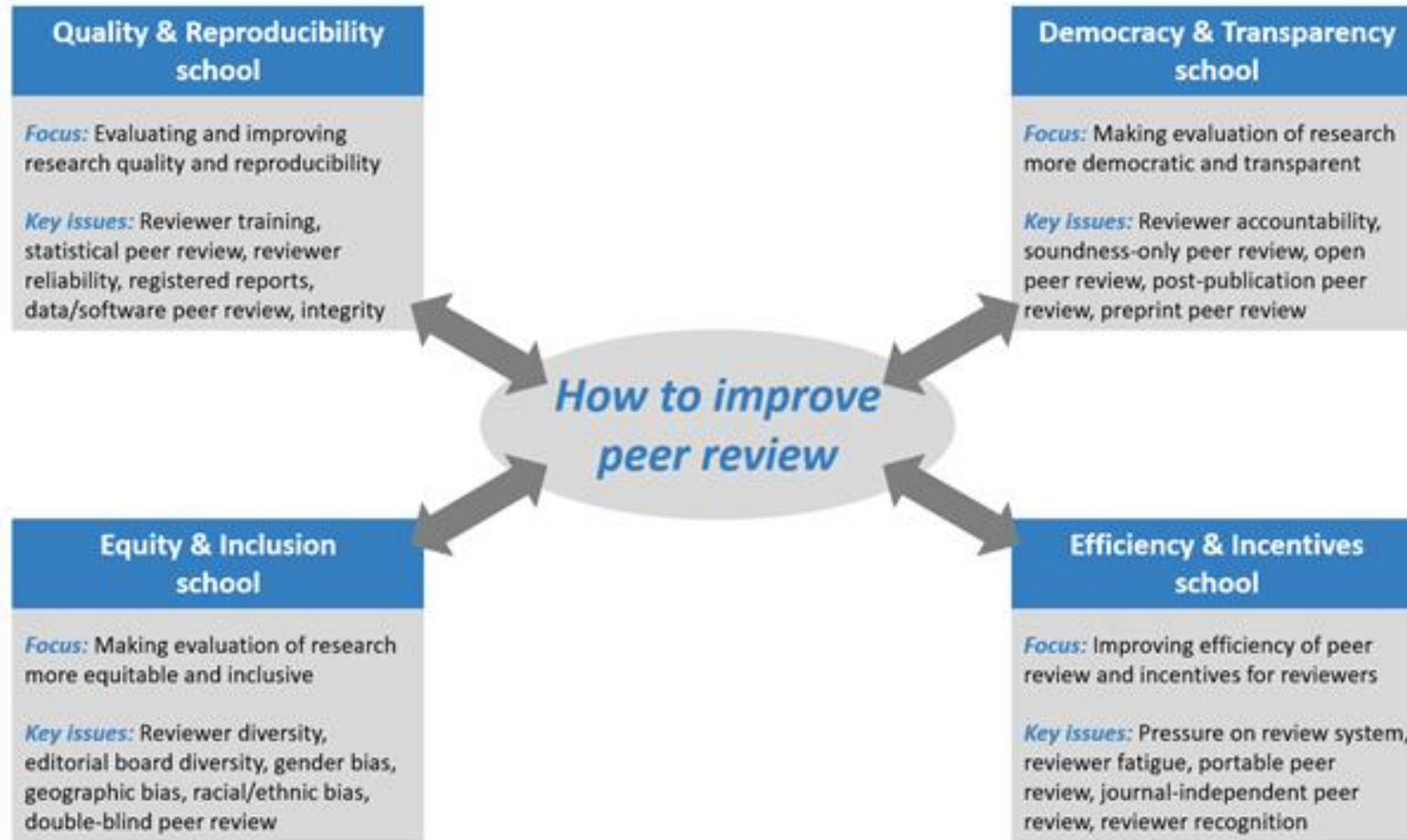
CAMBRIDGE UNIVERSITY PRESS BMC FAIRsharing.org PREVIEW Copyright Clearance Center

Gf SSRN CASPA Africa ArXiv RoRI RESEARCH ON RESEARCH INSTITUTE OXFORD UNIVERSITY PRESS

27 April 2020 (updated 17 December 2020)

<https://oaspa.org/covid-19-publishers-open-letter-of-intent-rapid-review/>

# Peer review needs a reform

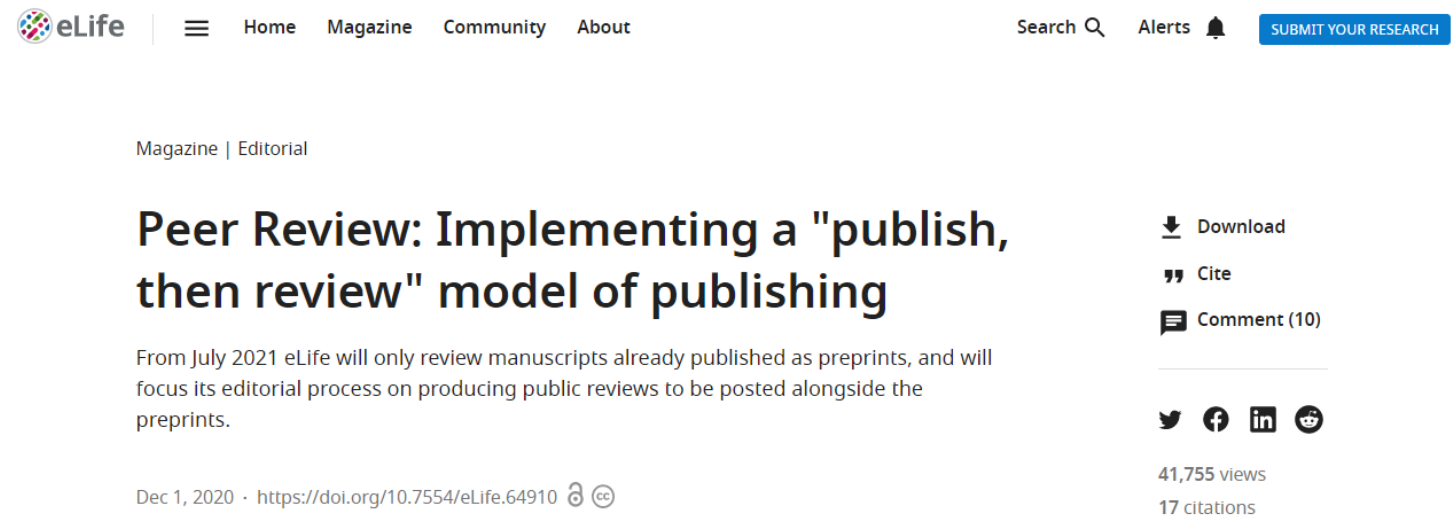


<https://blogs.lse.ac.uk/impactofsocialsciences/2022/03/24/there-are-four-schools-of-thought-on-reforming-peer-review-can-they-co-exist/>

# Publish, then review

“a recent internal analysis showed that nearly 70% of papers under review at eLife were already available on bioRxiv, medRxiv or arXiv.

This is a major milestone. It means that **for all practical purposes eLife is no longer a publisher: rather, eLife is now an organization that reviews and certifies papers that have already been published.** We welcome this moment, and the long-awaited opportunity it provides to replace the traditional "review, then publish" model developed in the age of the printing press with a **"publish, then review" model optimized for the age of the internet.**”



The screenshot shows the eLife website interface. At the top left is the eLife logo. To its right are navigation links: Home, Magazine, Community, and About. Further right are Search, Alerts, and a 'SUBMIT YOUR RESEARCH' button. Below the navigation is the article title 'Peer Review: Implementing a "publish, then review" model of publishing' under the category 'Magazine | Editorial'. A short summary follows: 'From July 2021 eLife will only review manuscripts already published as preprints, and will focus its editorial process on producing public reviews to be posted alongside the preprints.' Below this is the date 'Dec 1, 2020' and the DOI link 'https://doi.org/10.7554/eLife.64910'. On the right side of the article, there are interactive options: 'Download', 'Cite', and 'Comment (10)'. Below these are social media sharing icons for Twitter, Facebook, LinkedIn, and Reddit. At the bottom right, it shows '41,755 views' and '17 citations'.

<https://elifesciences.org/articles/64910>



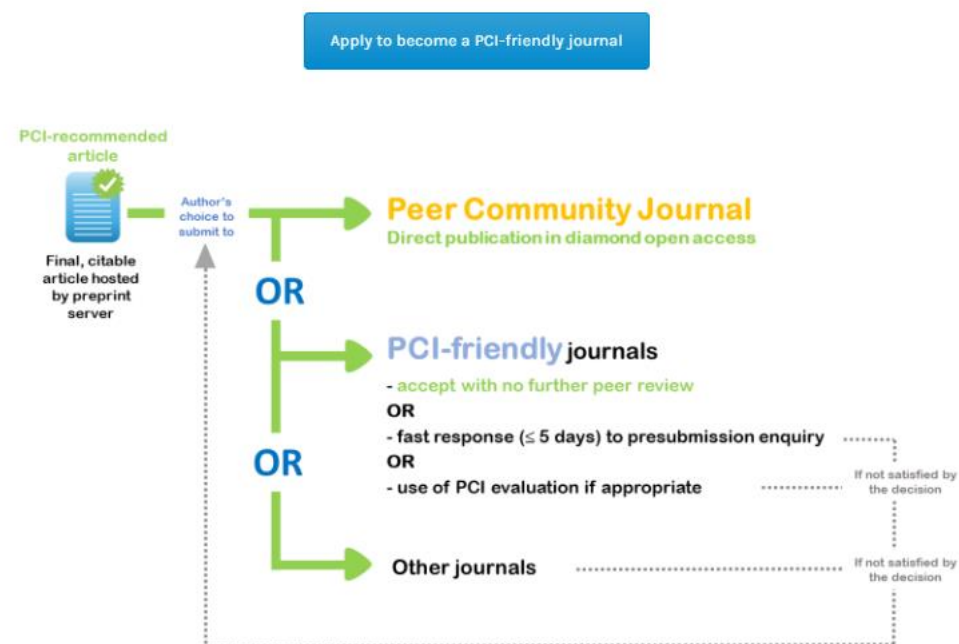
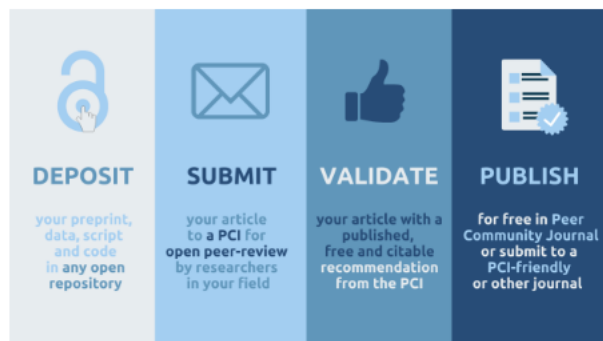
# “Publish, then review” approach

## Peer Community in

PCI, a free recommendation process of scientific preprints based on peer reviews and a journal

Following submission by authors, the thematic PCIs evaluate preprints in their scientific fields based on rigorous peer-review. After evaluation, the PCIs may recommend those preprints, to make them complete, reliable and citable articles, without the need for publication in 'traditional' journals. Authors who need to publish their article in a journal can publish it for free in Peer Community Journal or submit it to a PCI-friendly or other journal.

Thematic PCIs are entitled *Peer Community in X*, e.g. – *Peer Community in Evolutionary Biology (PCI Evol Biol)* and *Peer Community in Ecology (PCI Ecol)*. See the list of all current PCIs.



Peer Community in

# Publish your reviews

**PublishYourReviews**



An initiative encouraging peer reviewers to publish their reviews alongside the preprint of an article

[Sign the pledge](#)



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## Why Publish Your Reviews?

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**Provide readers with additional context** on preprints, pointing out strengths, weaknesses, and unanswered questions.

**Enable reuse** of peer reviews, thereby reducing burden on editors and reviewers.

Bring discussions into the public domain, where readers can **enrich the conversation with diverse expertise**.

**Surface the work of reviewers to a broader audience**, promoting greater recognition for this important work.

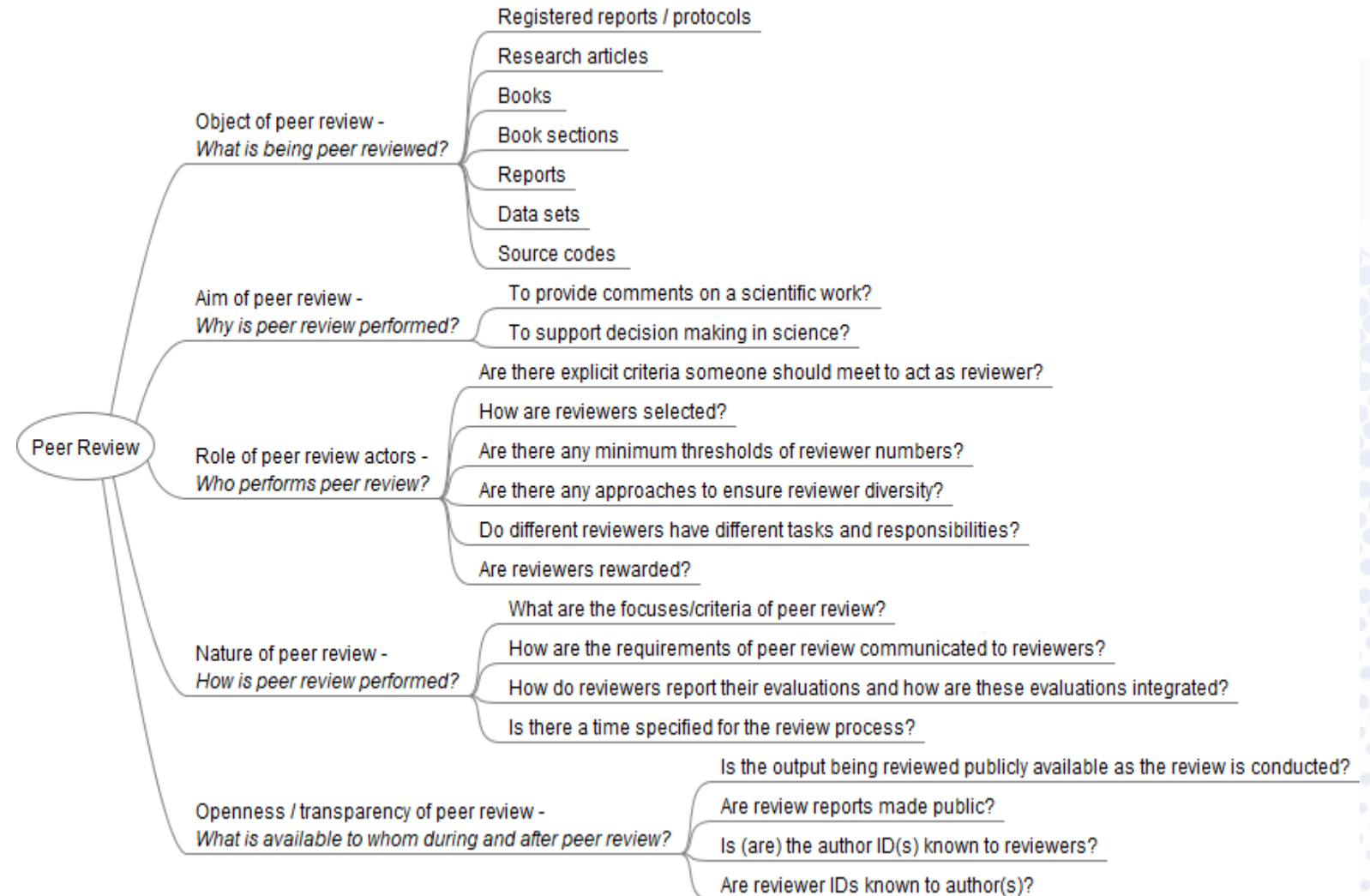
**Catalyze a culture of open commenting on preprints** by surfacing hidden conversation.

## Publish Your Reviews pledge

Fill out this form to sign the Publish Your Reviews pledge:

"When a journal invites me to review an article that is available as a preprint, I will publish my review alongside the preprint. I will make sure that the published version of my review does not include the journal name, a recommendation for publication, or other confidential information."

# Innovations in peer review



Kaltenbrunner, W., Pinfield, S., Waltman, L., Woods, H. B., & Brumberg, J. (2022, January 22). Innovating peer review, reconfiguring scholarly communication: An analytical overview of ongoing peer review innovation activities. <https://doi.org/10.31235/osf.io/8hdxu>

# Open Peer Review within ORE

## Reviewer Benefits

Open Research Europe  
**Benefits for Peer Reviewers**  
Open peer review on Open Research Europe benefits you as a researcher and the wider community. Here's why:

**Get credit for your work**  
Your name and affiliation are published alongside your peer review report, allowing readers to acknowledge your contribution.

**Work with others**  
Acknowledge the input of colleagues or mentor early career researchers and name them as co-reviewers.

**Get a Digital Object Identifier (DOI)**  
Add your peer review report to your ORCID record or cite individual reports to make them more visible and discoverable.

**Use our viewing metrics**  
See how many times your peer review report has been viewed.

<https://open-research-europe.ec.europa.eu/for-referees/incentives/>

Open Peer Review Explained

QUALIFIED  
EXPERT  
IMPARTIAL

QUALIFIED  
EXPERT  
IMPARTIAL

QUALIFIED  
EXPERT  
IMPARTIAL

QUALIFIED  
EXPERT  
IMPARTIAL

QUALIFIED  
EXPERT  
IMPARTIAL

Open Research Europe

REVIEWER FINDER TOOL

1:45 / 2:04

<https://youtu.be/aEMLEZ-FK1c>

# Published article with reviews

The screenshot shows the Open Research Europe interface. At the top, there is a search bar and a 'SUBMIT YOUR RESEARCH' button. Below the navigation bar, the article title is displayed: 'A collection of narrative practices on cultural heritage with innovative technologies and creative strategies [version 1; peer review: 2 approved]'. The author is identified as Estefanía López Salas. The article is categorized as a 'CASE STUDY' and is included in the 'Safeguarding Cultural Heritage' collection and the 'Societal Challenges' gateway. The article has 127 views, 11 downloads, and 0 citations. The 'Open Peer Review' section shows an approval status of 'Approved' with two green checkmarks. The reviewers listed are Andreas Vlachidis (University College London, London, UK) and Chiara Cecalupo (Universidad Carlos III de Madrid, Madrid, Spain). The article is currently at 'Version 1' (25 Oct 21). There are options to 'Cite', 'Download', 'Export', 'Share', and 'Track' the article. The abstract is partially visible at the bottom.

[Back to all reports](#)

**Reviewer Report** 20 Views

✓ **Approved**

12 Nov 2021

VERSION 1

**Andreas Vlachidis**, Department of Information Studies, University College London, London, UK

” [Cite this Report](#)

[Responses](#) (1)

The paper presents an extensive review of 22 narrative models of cultural heritage applications (digital guides). It reveals best practices, strategies, and state-of-the-art use of technology for enriching visitors' experience and engagement with cultural heritage.

The paper is very well-structured and written. The 22 cases studies are summarised under 6 distinct categories, namely; sound-walks, wearable-guides, context-aware games, simulations, digital exhibitions, and cultural wayfinding. Most importantly, the study introduces a well-designed and balanced model and method for systematising the review of cultural heritage applications. The model provides a clear distinction between “context” and “strategy” and enables a review of attributes and characteristics under the categories, entity, aims, scale, technology and outcome, and their specialised sub-categories.

The value of the model is evident in Figure 4 which provides a comprehensive and succinct view of the review outcome. The only area that the study lacks some clarity is accessibility, both on the level of digital technology and on the level of cultural accessibility of people with disabilities. It is important that the study discusses how the model can be enhanced to enable reviewing accessibility characteristics of the digital applications as well as how such applications are used to broaden access to cultural heritage sites.

**Is the background of the case's history and progression described in sufficient detail?**

Yes

**Is the work clearly and accurately presented and does it cite the current literature?**



# Infographics

## Open Peer Review

### How to find peer reviewers

Essential guidance from Open Research Europe on how you can find and suggest suitable reviewers for your research.


Publishing on Open Research Europe? Before your submitted article can be published on the platform, you need to suggest five potential reviewers who meet our criteria.

#### 4 ways to find reviewers

- 1. Use your knowledge of the field**  
What journals are well-known in your field of research? Their Editors or Editorial Board Members could be suitable reviewers for your submission.
- 2. Try the Reviewer Finder Tool**  
Use the Reviewer Finder Tool to search for experts in the field. This tool uses an algorithm to generate a list of potential reviewers, based on leading authors of related research. Use your own judgment to decide if the experts suggested here have the right expertise and credentials. Find the tool via the Suggest Reviewers link in the Submissions section of [My Research](#).
- 3. Look at your references**  
Your article probably cites other research in the field; authors of these cited papers could be good candidates to review your work. You should also investigate their references, for more examples of researchers working in the same field. Just remember to check they meet our reviewer criteria!
- 4. Explore academic databases**  
Browse abstracting and indexing databases like [Google Scholar](#), [PubMed](#), [Web of Science](#), and [Scopus](#), or search tools like [JANE](#), for recent articles with relevant keywords. Authors of these articles may be good peer reviewers for your research.

#### Who can be a peer reviewer?

Qualified	Expert	Impartial	Global
Reviewers need a doctorate (or equivalent), or have demonstrable industry experience	Reviewers should have been lead author on at least 3 publications in the last 5 years	Reviewers should have no competing interests (financial or non-financial)	Reviewers should be from different countries, to give a balanced perspective

Open Research Europe 


[How to find peer reviewers](#)

## How does peer review work at Open Research Europe?

Get to grips with our open, post-publication peer review model, so your research can move through this process quickly and easily.

Look out for the **steps in blue** as these are points in the process where you need to take action!

[How does peer review work at Open Research Europe?](#)

Open Research Europe 

# Reimagine peer review

ReImagineReview

Search projects

A project of ASAPBio About Add listing Glossary Blog Sign in or Register Explore

Find review projects by research output reviewed



Preprints



Journal accepted manuscripts



Privately shared manuscripts



Other scholarly outputs

[View all registered projects](#)

## Discover peer review projects

Projects

Search  Search

<https://reimaginebio.asapbio.org/>

## Explore preprint review platforms

Preprints or requests for reviews

ADD REVIEW

RECENTLY REVIEWED RECENTLY REQUESTED

body protects HACE2 mice against SARS-CoV-2 infection via intranasal

38.429275

PREVIEW

Catalyzing change in peer review through equity, o...

preLights

A community platform for highlighting and comm...

Peeriodicals.com

Select the best science

hypothesis

About Us In Action Blog Developers

Make reading active, visible and social

Are you interested in increasing student engagement, expanding reading comprehension, building critical thinking and community in classes? Collaborative annotation makes reading visible and social, enabling students to engage with their texts, teacher feedback, and more in deeper, more meaningful ways.

Hypothesis

Creating a conversation over all knowledge

scientific Publishing: How early-career researchers are shaping eLife

Plaudit

Open endorsements from the academic community

Peer Community In

A free recommendation process of unpublished s...

Plaudit Open endorsements from the academic community

Share Bookmark

Profile Comments

Website Leave a comment

**In a nutshell**

Plaudit allows researchers to publicly endorse academic research, and makes this data openly available. This provides a clear, simple and accessible signal about the quality of an academic work, that builds on the knowledge of your academic peers rather than the reputation of the journal it is published in.

**Goals and Intentions**

Plaudit was created to improve the incentive structure in academia in which researchers feel pressured to publish their work in 'top-tier', but often paywalled journals, or journals with a substantial publishing fee. By providing an alternative signal of quality that still relies on the expertise of your academic peers, the hope is that that pressure can be relieved.

**Project status**

Active

**Types of outputs**

- Journal accepted manuscripts
- Other scholarly outputs
- Preprints

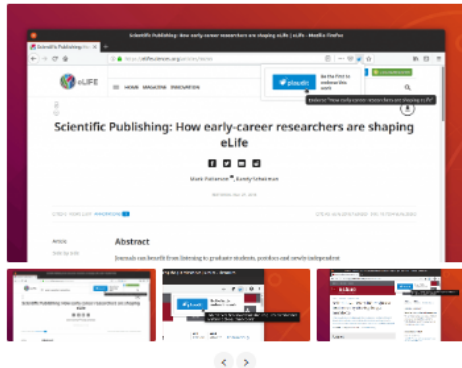
**Review process**

Review requested by	Non-authors
Reviewer selected by	Self-nominated
Public interaction	Yes
Author response	No
Decision	Binary decision

**Review policy**

Review coverage	Complete paper
Reviewer identity known to	Public
Competing interests	Not included

**Gallery**



**Review features**

Manuscript hosting	No
Review of code or data	No
Eligible reviewers/editors	Anyone with an ORCID ID, willing to expose their endorsement to public scrutiny.

**Transparency**

- Open Identifiers
- Open Interaction
- Open participation
- Open reports

**Results**

Number of scholarly outputs commented on	1,000-10,000
Metrics	All endorsements are made publicly available as open data through CrossRef Event Data



# Communicating Science to a wider audience

# RRI Pillars



## **ETHICS**

Research integrity and ethical acceptability of the R&I outcomes



## **GENDER EQUALITY**

Human resources, decision bodies and research dimension



## **GOVERNANCE**

Structural changes to include all these issues in the R&I system



## **OPEN ACCESS**

To results from publicly funded research, privacy issues and even more: open science



**PUBLIC ENGAGEMENT**  
Towards a more open and inclusive R&I

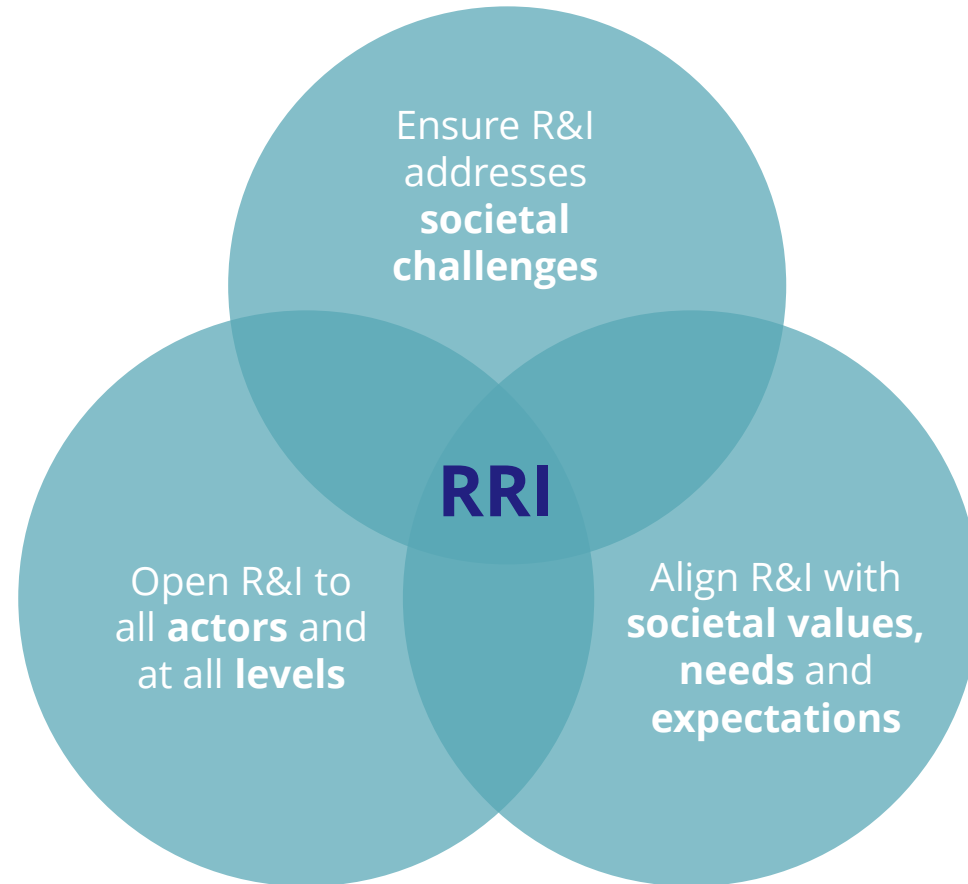


## **SCIENCE EDUCATION**

Provide competences for the responsible citizens society needs

[Image from RRI tools](#)

# Democracy in science and science in democracy



Responsible Research & Innovation is a **new governance and values framework** to build a new path where these requests can blossom



# These process dimensions mean

New actors need to be involved and listened to in the early stages of R&I

  
Diversity and Inclusion

  
Anticipation and Reflection

R&I should care about how its own dynamic will affect the future

R&I should be open to society in a meaningful and honest way

  
Openness and Transparency

  
Responsiveness and Adaptive Change

R&I needs values and processes to adapt to emerging knowledge and needs

# Public engagement



## Engaging the Public in Responsible Research and Innovation

The course will help understand and justify the importance of public engagement as a key dimension of responsible research and innovation and open science. It provides tools to design, implement...

<https://www.fosteropenscience.eu/learning/introduction-to-responsible-research-and-innovation>

## Levels of public engagement

### A classification

Not all ways of reaching the public can be considered public engagement – or offer the same level of public "engagedness". Here is a classification you may want to consider to reflect on the range of public engagement in R&I.

+ Information

+ Consultation

+ Involvement

+ Collaboration

### How to embed public engagement in RFPOs?

There is no one-size-fits-all way of doing public engagement. Successful engagement processes deeply depend on the context of specific RFPOs and on the identities (roles, needs, capacities, expectations) of stakeholders to engage. Nor is this the place to identify and examine in detail how to embed public engagement in RFPOs. Instead, we will highlight three aspects that most public engagement exercise must contemplate for successful implementation: planning, facilitation and evaluation.

### Planning

"(...) participation should not be used without respect for participants. The fuel of participation is people's time, and in a time-poor world this resource is in ever-shorter supply. Those designing participation processes cannot take this time for granted and must ensure that everything possible is done to ensure that a participant's time is well spent. This means ensuring that a process has focus and clarity of purpose, that participants' needs are fully aired and considered and that their level of influence in the process – what can be changed as a result of it – is clear from the start." (People & Participation: How to put citizens at the heart of decision-making, Involve)

Careful planning that takes good care of people's time usually includes variations of the following dimensions:

- scope and goals of the engagement process
- the identities and expectations of the stakeholders regarding these goals
- the available resources and its allocation (time, budget, space and materials, personnel and skills, tools).

+ Scope and goals

+ Stakeholder mapping

+ Choosing tools & designing workshops

### Evaluation

Considering the relative novelty of public engagement in RFPOs, evaluation must be seen as integral to public engagement approaches, not something that you can add to the process. Evaluation is crucial for understanding, testing and improving these approaches, setting and promoting best practices, enhancing their transparency, and understanding the contexts of different approaches.

+ Why evaluate?

– What to evaluate?

- success of engagement (vs. goals)
- process (did the methods work? was the budget adequate? what to learn for future PE?)
- impact on the public, on the researchers, elsewhere?

+ When to evaluate?

+ How to evaluate

# Self-reflection tools

## The interactive EDGE

Use this interactive tool to assess your institution's support for public engagement.

Have a go at using the EDGE tool – drag the sliders to the statement that best describes how your institution is currently supporting public engagement. Submit your results to us and we'll offer some top tips about what to do next.

### Part one: Purpose

Clarify your **PURPOSE** for engaging with the public

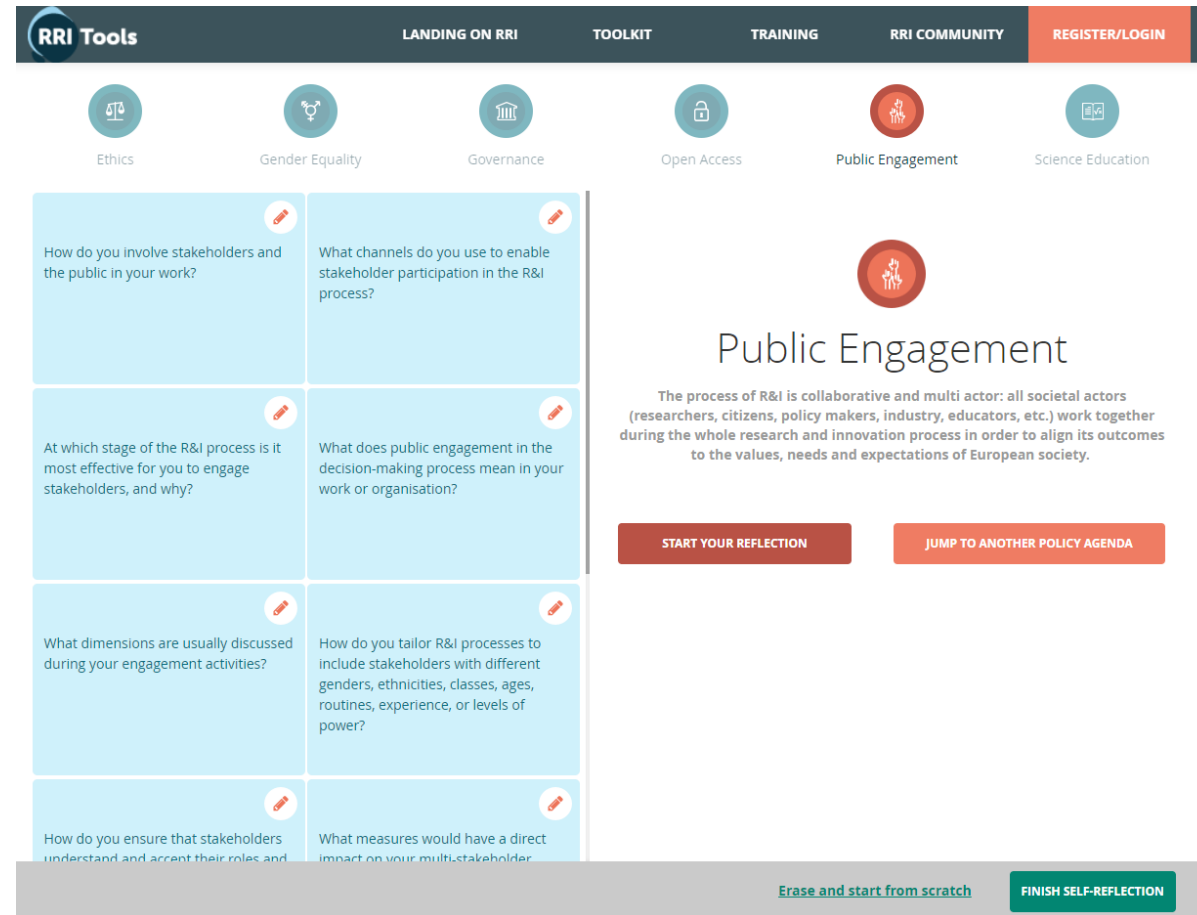
1

#### Mission

Create a shared understanding of the purpose, value, meaning and role of public engagement to staff and students and embed this in your strategy and mission.

### Choose a description

<input type="checkbox"/>	<b>Embryonic</b> There is little or no reference to public engagement in the organisational mission or in other institution-wide strategies	<b>Developing</b> Public engagement is referenced sporadically within the institutional mission documents and strategies, but is not considered a priority area	<b>Gripping</b> Public engagement is clearly referenced within the institutional mission and strategies and the institution is developing an institution-wide strategic approach	<b>Embedding</b> Public engagement is prioritised in the institution's official mission and in other key strategies, with success indicators identified. It is a key consideration in strategic developments in the institution
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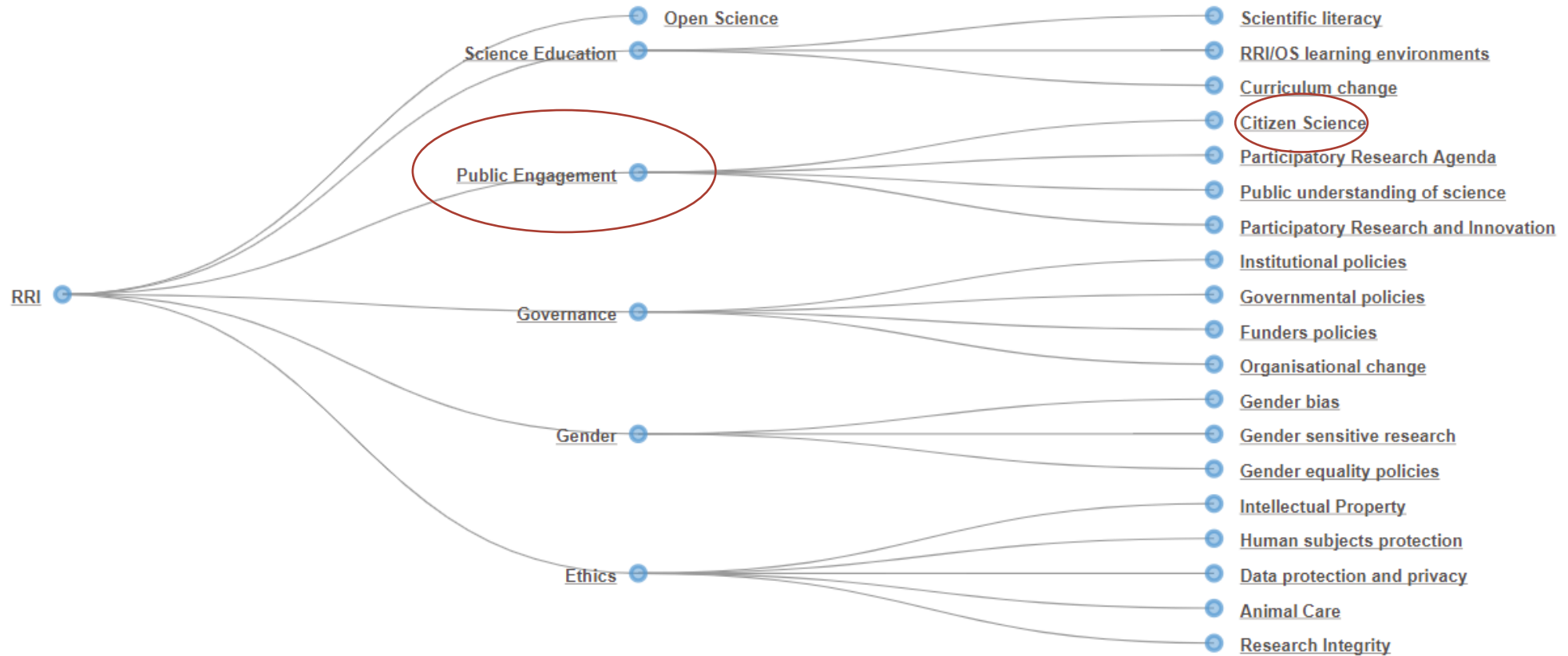


The screenshot shows the 'RRI Tools' website interface. At the top, there is a navigation bar with 'RRI Tools' on the left and 'LANDING ON RRI', 'TOOLKIT', 'TRAINING', 'RRI COMMUNITY', and 'REGISTER/LOGIN' on the right. Below the navigation bar, there are six circular icons representing different tool categories: Ethics, Gender Equality, Governance, Open Access, Public Engagement, and Science Education. The 'Public Engagement' icon is highlighted in red. Below the icons, there is a grid of 10 reflection questions, each with a red pencil icon in the top right corner. The questions are: 1. How do you involve stakeholders and the public in your work? 2. What channels do you use to enable stakeholder participation in the R&I process? 3. At which stage of the R&I process is it most effective for you to engage stakeholders, and why? 4. What does public engagement in the decision-making process mean in your work or organisation? 5. What dimensions are usually discussed during your engagement activities? 6. How do you tailor R&I processes to include stakeholders with different genders, ethnicities, classes, ages, routines, experience, or levels of power? 7. How do you ensure that stakeholders understand and accept their roles and... 8. What measures would have a direct impact on your multi-stakeholder... In the center of the page, there is a large red circle with a white icon of a person and a speech bubble, with the text 'Public Engagement' below it. Underneath this, there is a paragraph: 'The process of R&I is collaborative and multi actor: all societal actors (researchers, citizens, policy makers, industry, educators, etc.) work together during the whole research and innovation process in order to align its outcomes to the values, needs and expectations of European society.' Below this paragraph are two red buttons: 'START YOUR REFLECTION' and 'JUMP TO ANOTHER POLICY AGENDA'. At the bottom of the page, there are two buttons: 'Erase and start from scratch' and 'FINISH SELF-REFLECTION'.

RRI Tools self-reflection tool

EDGE tool

# RRI taxonomy



# Citizen science

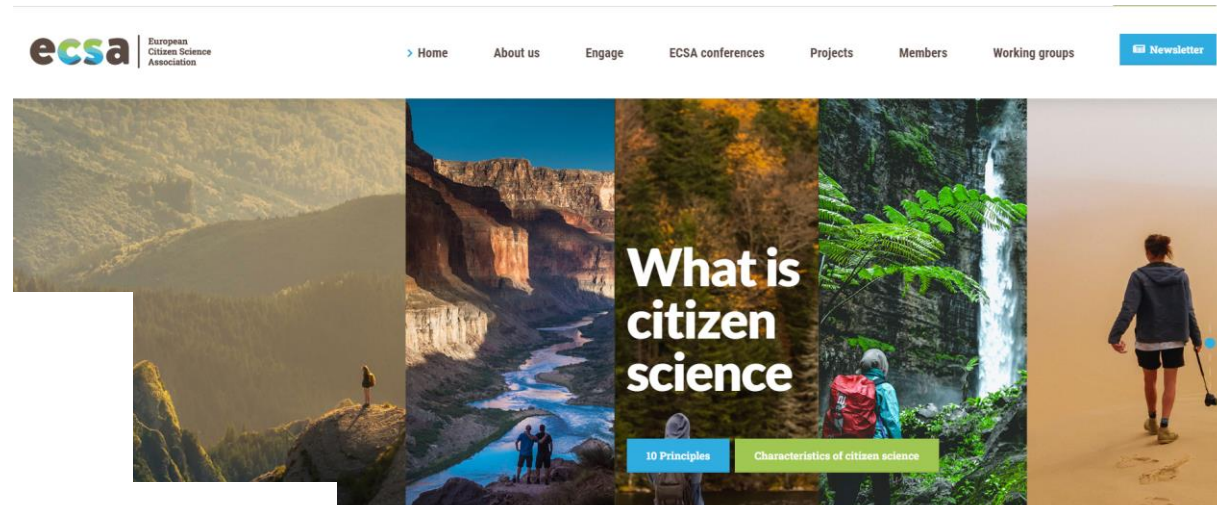
## How you can engage with ECSA

Let's join forces to advance citizen science in Europe! If you would like to get involved with ECSA's activities, then engage.

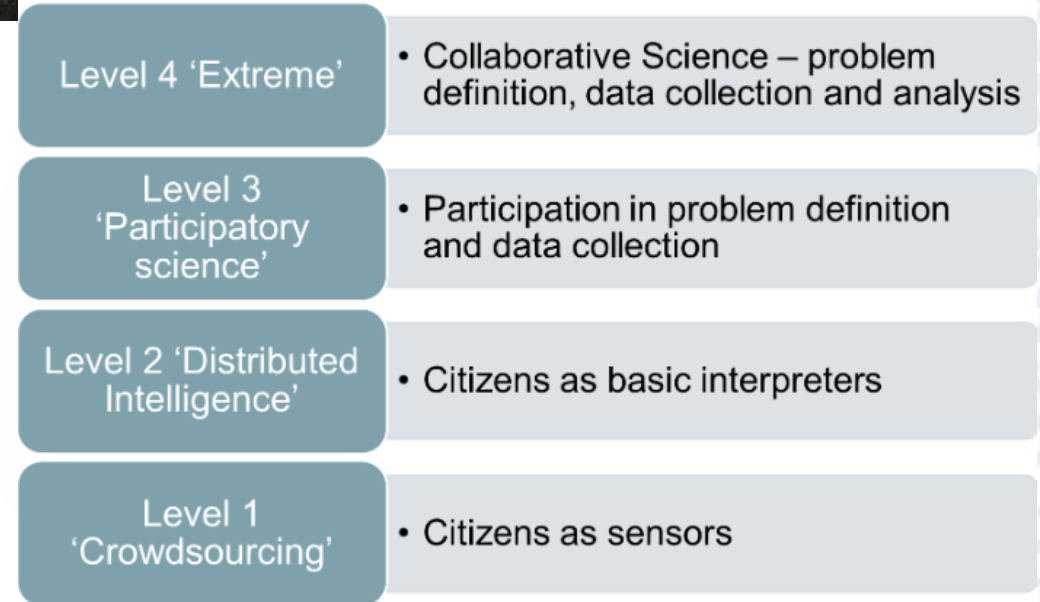
### Current Working Groups

 <p><b>Involve ECSA in Your Project</b> Make us part of your citizen science activities</p>	 <p><b>Air quality</b></p>	 <p><b>BioBlitz</b></p>	 <p><b>Citizen science and open science</b></p>
 <p><b>Propose new Advisory and E members</b> ECSA members can volunteer or candidate on executive board or advisory board.</p>	 <p><b>Citizen science and universities</b></p>	 <p><b>Citizen science for health</b></p>	 <p><b>Citizen science networks</b></p>
 <p><b>Green spaces and citizen science</b></p>	 <p><b>Empowerment, inclusiveness and equity</b></p>	 <p><b>European Citizen Science Platform</b></p>	
 <p><b>Agri-food</b></p>	 <p><b>Learning and education in citizen science</b></p>	 <p><b>Projects, data, tools and technology</b></p>	
 <p><b>Policy, strategy, governance and partnerships</b></p>	 <p><b>Sharing best practice and building capacity</b></p>	 <p><b>Storytelling and other arts</b></p>	
 <p><b>Global Mosquito Alert</b></p>			

<https://ecsa.citizen-science.net/>



### Levels of Citizen Science



*Levels of Participation in Citizen Science*

<https://povesham.wordpress.com/2011/11/27/citizen-science-as-participatory-science/>



# ECSA ten principles of Citizen Science

Cite this document as:  
ECSA (European Citizen Science Association). 2015. Ten Principles of Citizen Science. Berlin. <http://doi.org/10.17605/OSF.IO/XPR2N>



## Ten principles of citizen science

Citizen science is a flexible concept which can be adapted and applied within diverse situations and disciplines. The statements below were developed by the *'Sharing best practice and building capacity'* working group of the **European Citizen Science Association**, led by the Natural History Museum London with input from many members of the Association, to set out some of the key principles which as a community we believe underlie good practice in citizen science.

1. **Citizen science projects actively involve citizens in scientific endeavour that generates new knowledge or understanding. Citizens may act as contributors, collaborators, or as project leader and have a meaningful role in the project.**
2. **Citizen science projects have a genuine science outcome.** For example, answering a research question or informing conservation action, management decisions or environmental policy.
3. **Both the professional scientists and the citizen scientists benefit from taking part.** Benefits may include the publication of research outputs, learning opportunities, personal enjoyment, social benefits, satisfaction through contributing to scientific evidence e.g. to address local, national and international issues, and through that, the potential to influence policy.
4. **Citizen scientists may, if they wish, participate in multiple stages of the scientific process.** This may include developing the research question, designing the method, gathering and analysing data, and communicating the results.
5. **Citizen scientists receive feedback from the project.** For example, how their data are being used and what the research, policy or societal outcomes are.

6. **Citizen science is considered a research approach like any other, with limitations and biases that should be considered and controlled for.** However unlike traditional research approaches, citizen science provides opportunity for greater public engagement and democratisation of science.
7. **Citizen science project data and meta-data are made publicly available and where possible, results are published in an open access format.** Data sharing may occur during or after the project, unless there are security or privacy concerns that prevent this.
8. **Citizen scientists are acknowledged in project results and publications.**
9. **Citizen science programmes are evaluated for their scientific output, data quality, participant experience and wider societal or policy impact.**
10. **The leaders of citizen science projects take into consideration legal and ethical issues surrounding copyright, intellectual property, data sharing agreements, confidentiality, attribution, and the environmental impact of any activities.**

September 2015, London

# Citizen Science Projects

The first documented Citizen Science project took place in 1900 in the USA, when the National Audubon Society launched the [Christmas Bird Count](#)

[Galaxy Zoo](#) is probably the most successful Citizen Science project in terms of impact

The screenshot shows the Galaxy Zoo website interface. At the top, there is a navigation bar with 'Galaxy Zoo' and links for 'ABOUT', 'CLASSIFY', 'TALK', and 'COLLECT'. The main content area features a dark background with a starry field and the text 'Few have witnessed what you're about to see'. Below this, there are two buttons: 'Learn more' and 'Get started'. A secondary section shows a 'Join in' button with the text '5 people are talking about Galaxy Zoo right now.' At the bottom, a 'GALAXY ZOO STATISTICS' section displays a progress bar at 94% completion and four key metrics: 86,136 Volunteers, 4,771,027 Classifications, 328,787 Subjects, and 310,030 Completed Subjects.

Metric	Value
Volunteers	86 136
Classifications	4 771 027
Subjects	328 787
Completed Subjects	310 030

**Audubon Christmas Bird Count**  
*The nation's longest-running community science bird project fuels Audubon's work throughout the year.*

[CBC Home](#) | [Access Count Results](#) | [CBC Photo Upload](#) | [Enter Your CBC Data](#) | [CBC Photo Gallery](#) | [CBC Trends Viewer](#)

For Compilers  
**Enter your CBC data here**  
Data Entry for the 122nd CBC

**Christmas Bird Count**  
**CBC Results**  
Current year and historical data



**Christmas Bird Count**  
**Join the Christmas Bird Count**

You can add to a century of community science by signing up for a count near you.



# Citizen Science and HEIs

## Advantages

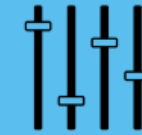
- Increase the social impact
- Provide learning opportunities for all
- Stimulate creativity
- Disseminate knowledge among citizen scientists in a pedagogically sound way
- Test active learning pedagogies (problem-based, games, inquiry)
- Maximize the impact of projects
- Reach a wider audience

<https://inos-project.eu/wp-content/uploads/2020/03/1-INOS-Infographics.pdf>

## HEIs: Strengthen Your Role in Citizen Science!

Address Societal Challenges in an Inclusive & Sustainable Way

Higher Education Institutions (HEIs) can contribute greatly to society by harnessing the power of Citizen Science. The INOS Project has studied institutions which are already active in this area, and has created nine recommendations based on these case studies. The recommendations encourage universities to sustainably connect with communities through trustful and transparent collaboration, so that citizens are further motivated to take a leading role in research which is directly relevant to them.



**ADJUST**

by enriching HE  
content & procedures

Strengthen the engagement of university students to meet ambitious social objectives

Not mere observers: engage University staff in design & implementation of citizen science

Develop curricula that embrace citizen science and public participation in shaping science



**OPEN UP**

to modes of engagement,  
new resources & stakeholders

Adopt innovative approaches in academic engagement for civil society

Open up to the various types of stakeholders a citizen science project can involve

Engage in open innovation



**CO-CREATE**

with and for society

Support local communities seeking scientific advice

Build trust and sustainability by including citizens

Leverage the role of universities in financial transparency initiatives



<https://inos-project.eu>



@INOSproject

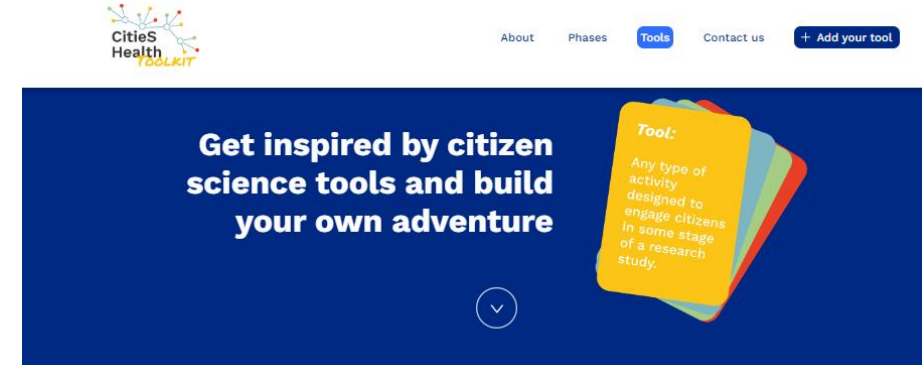


# Citizen Science Toolkit



## Four phases to take your Citizen Science project to the next level!

- 1 Identification**  
Start with an issue that citizens care about
- 2 Co-design**  
Co-design the research study and give decisions to citizens
- 3 Deployment**  
Deploy data collection and human relations
- 4 Action**  
Plan the action to drive changes

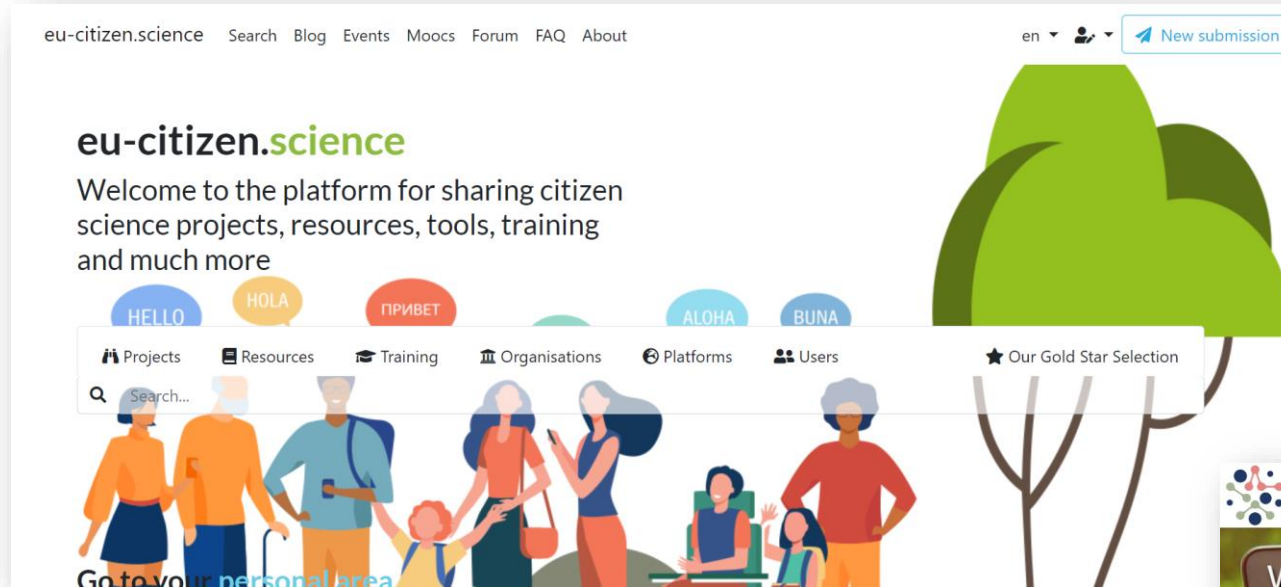


The screenshot displays a filterable tool gallery. At the top, there are filter buttons for 'All', 'Identification', 'Co-design', 'Deployment', and 'Action'. Below these are three dropdown menus for 'Type of activity', 'People involved', and 'Issues tackled'. The 'Type of activity' dropdown is open, showing options like 'Select all', 'Artefact', 'Communication', 'Event', 'Online engagement', 'Pop-up', 'Research', and 'Workshop'. The 'People involved' dropdown is also open, showing options like 'Select all', '+1000', '+100', '-15', '-40', and 'Project team'. Below the filters are three tool cards: 'RAPID APPRAISAL MAPPING', 'SCIENCE SHOPS', and 'HISTORICAL RESEARCH', each with a play button icon and a right-pointing arrow.

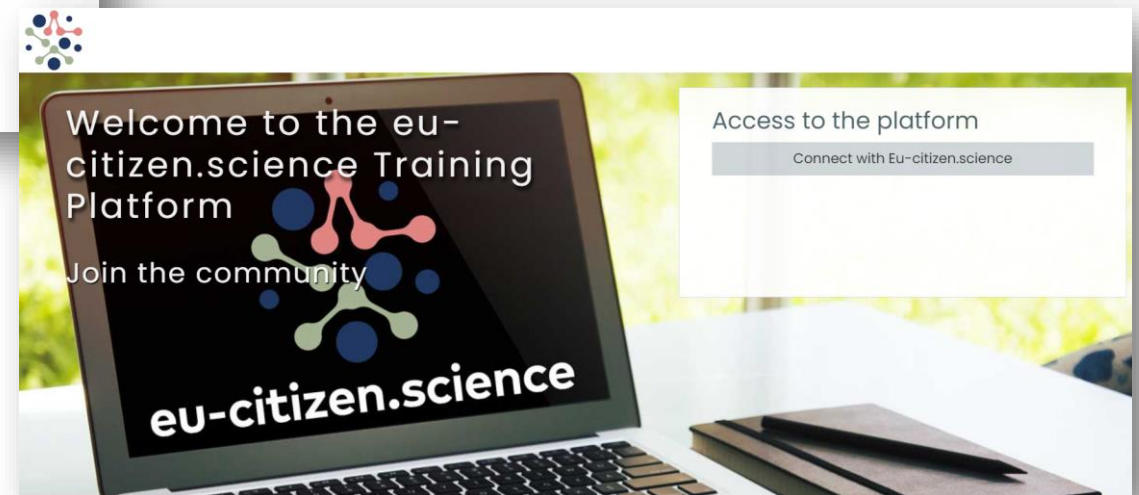
<https://citizensciencetoolkit.eu/>



# Courses



<https://eu-citizen.science/>



<https://moodle.eu-citizen.science/>



**Thank you**

[antonia.correia@usdb.uminho.pt](mailto:antonia.correia@usdb.uminho.pt)