

GenOA week

International Open Access Week
25 - 29 october 2021

**Le prospettive di Open Science in Horizon Europe:
esperienza pratica del documento Slègami**

Matteo Di Rosa – APRE

Open Science e Horizon Europe

lunedì 25 ottobre 2021



Le prospettive di Open Science in Horizon Europe: esperienza pratica del documento Slègami.

Matteo Di Rosa

25/10/2021

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Open Science: One Term, Five Schools of Thought

- ↗ **Democratic school:** Believing that there is an **unequal distribution of access to knowledge**, this area is concerned with **making scholarly knowledge (including publications and data) available freely for all.**
- ↗ **Pragmatic school:** Following the principle that the **creation of knowledge is made more efficient through collaboration** and strengthened through critique, this area seeks to harness network effects by **connecting scholars and making scholarly methods transparent.**

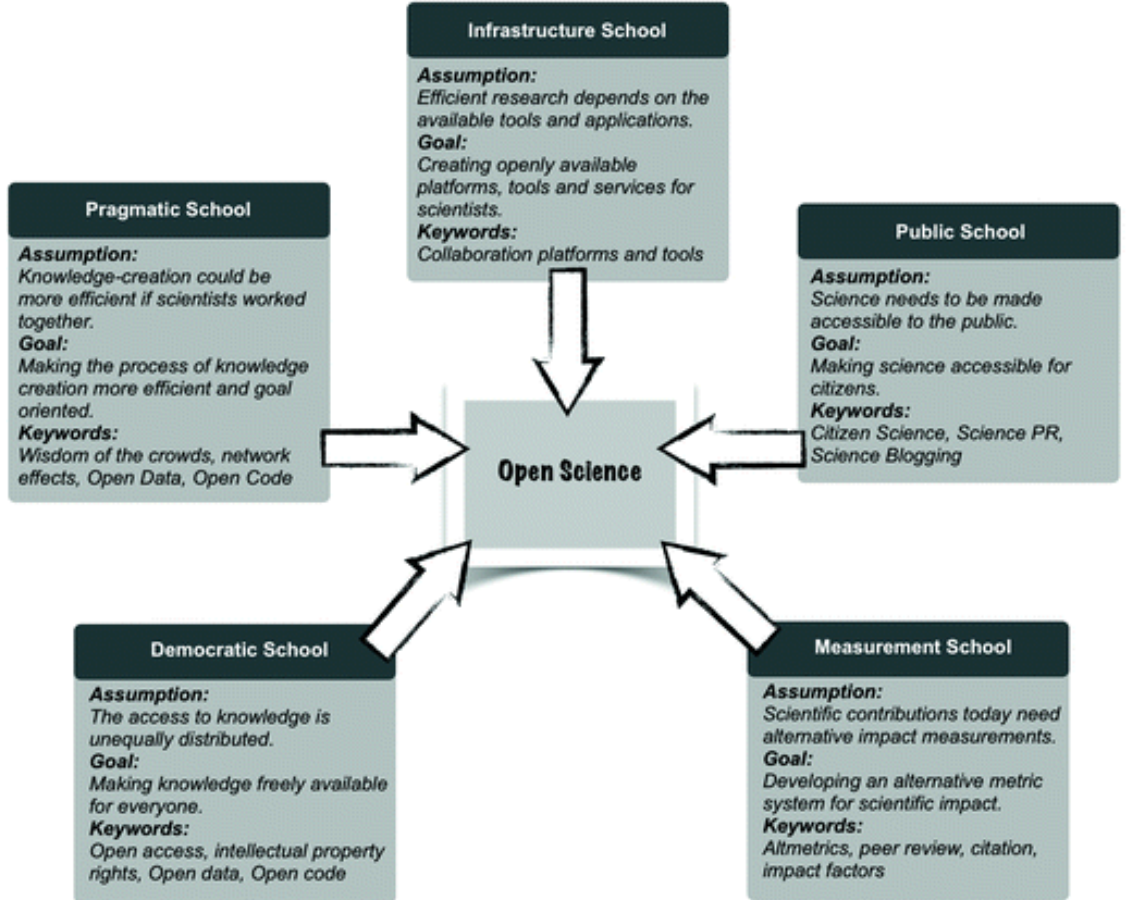


Open Science: One Term, Five Schools of Thought

- ❏ **Infrastructure school:** This thread is motivated by the assumption that **efficient research requires readily available platforms, tools and services for dissemination and collaboration.**
- ❏ **Public school:** Based on the recognition that **true societal impact requires societal engagement** in research and readily understandable communication of scientific results, this area seeks **to bring the public to collaborate in research through citizen science**, and make scholarship more readily understandable through lay summaries, blogging and other less formal communicative methods.
- ❏ **Measurement school:** Motivated by the **acknowledgement that traditional metrics for measuring scientific impact have proven problematic** (by being too heavily focused on publications, often only at the journal-level, for instance), **this strand seeks "alternative metrics"** which can make use of the new possibilities of digitally networked tools to track and measure the impact of scholarship through formerly invisible activities.

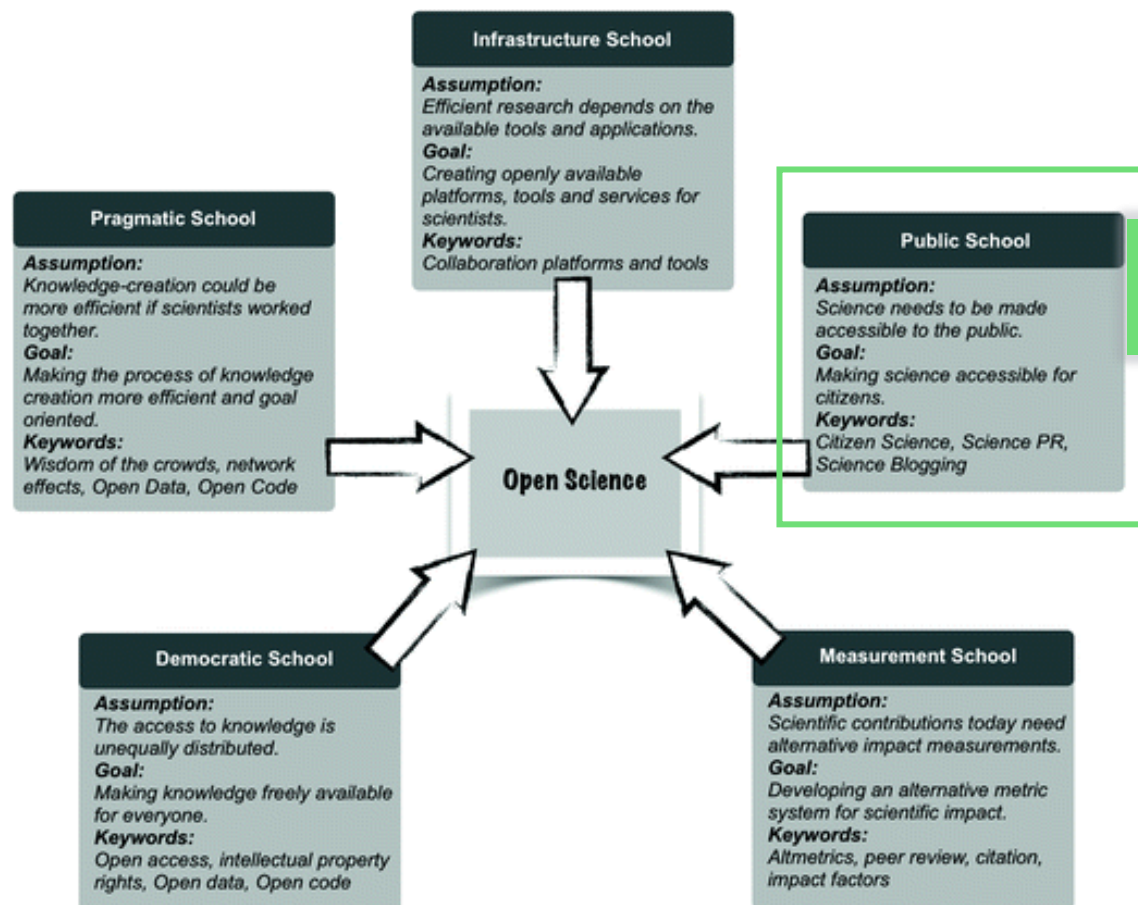


Open Science: One Term, Five Schools of Thought





Open Science: One Term, Five Schools of Thought



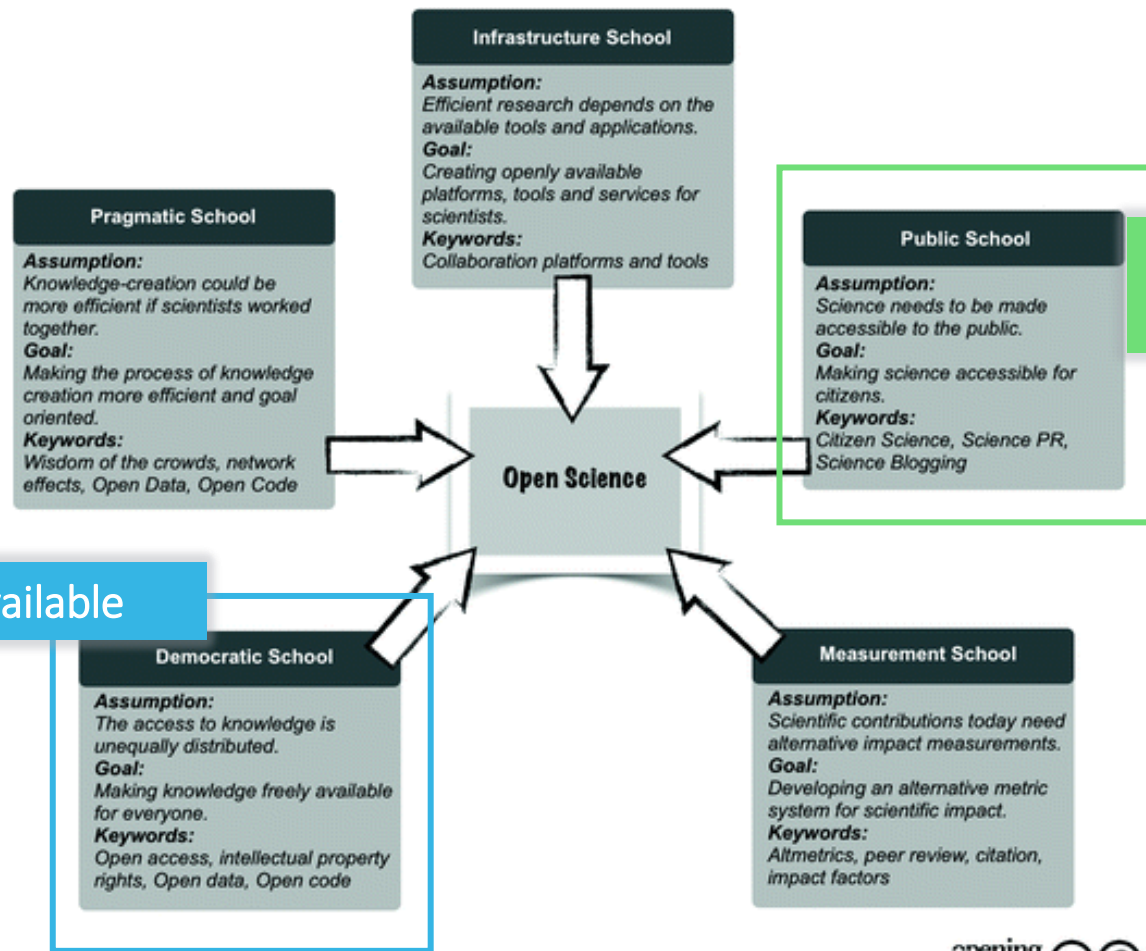
The Obligation to Make Science Accessible to the Public

- accessibility of the research process (the production) and participation
- comprehensibility of the research result (the product)





Open Science: One Term, Five Schools of Thought



The Obligation to Make Science Accessible to the Public

accessibility of the research process (the production) and participation

comprehensibility of the research result (the product)

Making Research Products Available

Research publications (Open Access)

Scientific data (Open Data)





Open Science: One Term, Five Schools of Thought



Making Research More Efficient

opening the scientific value chain (external knowledge, collaboration through online tools)

Pragmatic School

Assumption: Knowledge-creation could be more efficient if scientists worked together.

Goal: Making the process of knowledge creation more efficient and goal oriented.

Keywords: Wisdom of the crowds, network effects, Open Data, Open Code

Infrastructure School

Assumption: Efficient research depends on the available tools and applications.

Goal: Creating openly available platforms, tools and services for scientists.

Keywords: Collaboration platforms and tools

Public School

Assumption: Science needs to be made accessible to the public.

Goal: Making science accessible for citizens.

Keywords: Citizen Science, Science PR, Science Blogging

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Making Research Products Available

Research publications (Open Access)

Scientific data (Open Data)

Democratic School

Assumption: The access to knowledge is unequally distributed.

Goal: Making knowledge freely available for everyone.

Keywords: Open access, intellectual property rights, Open data, Open code

Measurement School

Assumption: Scientific contributions today need alternative impact measurements.

Goal: Developing an alternative metric system for scientific impact.

Keywords: Altmetrics, peer review, citation, impact factors

Open Science





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focuses on the technological requirements (e.g. distributed computing, social networks)

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Finding Alternative Measurements for Scientific Output

How scientific impact can be measured in the digital age? (Altmetrics)

Open Science

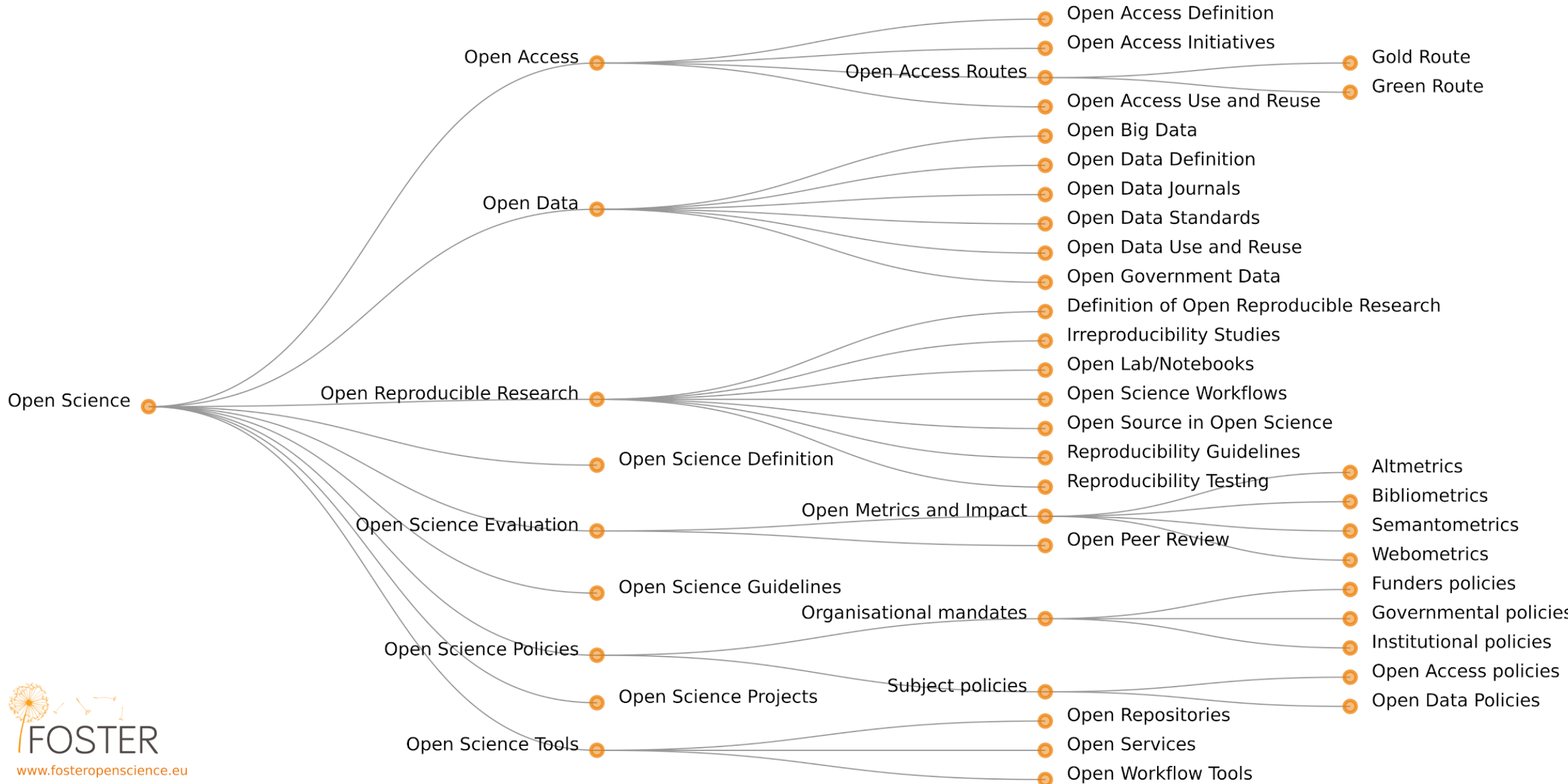




What is Open Science?

- ↗ **Open Science** refers to a scientific culture that is characterized by its openness. Scientists share results almost immediately and with a very wide audience. (Bartling and Friesike, 2014)
- ↗ **Open Science** is not about dogma; it is about greater efficiency and productivity, more transparency and a better response to interdisciplinary research needs (Leru 2018)
- ↗ **Open Science** is a “movement which aims to make scientific research, data and dissemination accessible to all levels of an inquiring society” (FosterOpenScience.eu)
- ↗ **Open science** is the practice of making everything in the discovery process fully and openly available, creating transparency and driving further discovery by allowing others to build on existing work (Watson, 2015)
- ↗ **Open Science** is the practice of science in such a way that others can collaborate and contribute, where research data, lab notes and other research processes are freely available, under terms that enable reuse, redistribution and reproduction of the research and its underlying data and methods. In a nutshell, Open Science is transparent and accessible knowledge that is shared and developed through collaborative networks (Vicente-Sáez & Martínez-Fuentes 2018).

Open Science Taxonomy





Research Infrastructures

Research Integrity

Open Science

Open Access Publications

Open Software

Open Access Data

Open Methodologies

Open Education

Open Workflows/Protocols

Citizen Science

Open Peer-Review

Evaluation: Altmetrics





Open Access manuale d'uso

1 **Depositing publications in repositories**
 #machine-readable electronic copy #preservations #repository #post-print

<p>Green Road #self-archiving #embargo</p>	<p>Gold Road #cost</p>
---	-----------------------------------

2

3 **Providing open access to publications.**

(GOLD) immediately, if the publication itself is published 'open access' (i.e. if an electronic version is also available free of charge to the reader via the publisher) or (GREEN) within at most 6 months (12 months for publications in the social sciences and humanities).

**SHERPA
ROMEO**

Not an obligation to publish - Not at odds with patenting - OA publications go the same peer review process



Open Access : what changes in HE

1

Depositing publications in trusted repositories

#machine-readable electronic copy #preservations #repository #post-print

Providing open access to publications immediately

- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and
- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication

2

3

#Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement

SHERPA
ROMEO

Not an obligation to publish - Not at odds with patenting - OA publications go the same peer review process



Research data management

Beneficiaries must manage the digital research data generated in the action responsibly, in line with the FAIR principles

establish + regularly update a **data management plan** ('DMP') for generated (and/or collected) data; by mo 6 of project; with submission or latest by grant agreement in cases of public emergency (e.g. COVID projects)

as soon as possible and within the deadlines set out in the DMP, **deposit** the data in a trusted repository (federated in the EOSC if required in the call conditions) + **ensure OA under CC BY, CC 0 or equivalent, following the principle 'as open as possible as closed as necessary'**

*provide information via the repository about any research output/tools/instruments needed to **re-use or validate the data***

Metadata must be open under CC 0 or equivalent (to the extent legitimate interests or constraints are safeguarded), **in line with the FAIR principles** and provide information about the licensing terms and persistent identifiers, amongst others



Chi c'è dietro a questo documento?



"S-LÉGAMI!"

OPEN ACCESS - MANUALE D'USO PER RICERCATORI



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DOWNLOAD: <https://zenodo.org/record/3615367#.X5kxclhKjIU>

Come è nato il documento?



Il manuale è il prodotto finale di un lavoro che si è svolto in 3 fasi.

1. Inizialmente, c'è stata una fase di raccolta delle domande più comuni poste dai ricercatori presso le strutture di supporto (siano esse Biblioteche o Grant Office) dei loro enti di appartenenza in materia di Open Access e Open Data.
2. Nella fase successiva le domande sono state consolidate e aggregate in 6 clusters: (I) I falsi miti; (II) Considerazioni individuali; (III) Peer Review e Impact Factor, (IV) La proprietà intellettuale e il contratto con l'editore; (V) Quello che i ricercatori non sanno; (VI) Open Access e Progetti Europei.
3. Durante la terza e ultima fase dello sviluppo del documento, alcuni membri, su base volontaria, hanno curato la redazione delle risposte, successivamente emendate in più riprese dall'intero gruppo di lavoro.

I falsi miti



- **È Open Access solo se si paga?**
- **Perchè pagare per pubblicare?**
- **Se l'articolo è disponibile sul sito dell'editore, vuol dire che è Open?**
- **Gli editori Open Access sono tutti predatory publishers.**
- **Come fare per riconoscere i predatory publishers?**

Considerazione Personali



- **Gestire l'Open Access delle pubblicazioni toglie tempo alla mia ricerca.**
- **Non mi importa che lo vedano tutti, mi importa che lo vedano solo le persone che mi interessano e che personalmente conosco, quindi non ho alcuna necessità di pubblicare in Open Access. La divulgazione dei miei lavori è assicurata comunque.**
- **Ma tanto all'ANVUR non interessa l'Open Access, quindi perché me ne devo occupare io?**
- **Trovo tutto su ResearchGate e Sci-Hub, perché devo pensare a pagare o pubblicare in Open Access?**
- **Devo obbligatoriamente pubblicare su una rivista Open?**

Peer review e Impact Factor



- **Le riviste Open Access che non prevedono il pagamento dell'APC non sono di qualità.**
- **L'Impact Factor delle riviste Open è scarso o nullo. Questo è un problema ai fini delle valutazioni.**

La proprietà intellettuale e il contratto con l'editore



- **Se rendo Open Access il mio lavoro, mi copiano e mi rubano le idee. Che tutela c'è sui diritti d'autore?**
- **Depositando la propria tesi di dottorato in Open Access nell'archivio istituzionale, non si può più pubblicare sulle riviste di interesse.**
- **Cos'è il contratto di edizione?**
- **Non ho mai letto un contratto editoriale e pubblico da anni senza mai aver avuto alcun problema.**
- **Cosa sono le Licenze Creative Commons e quali sono le più indicate per dare massima diffusione a un'opera?**
- **Mettere a disposizione i dati della propria ricerca li espone al rischio di essere rubati.**

Quello che i ricercatori non sanno

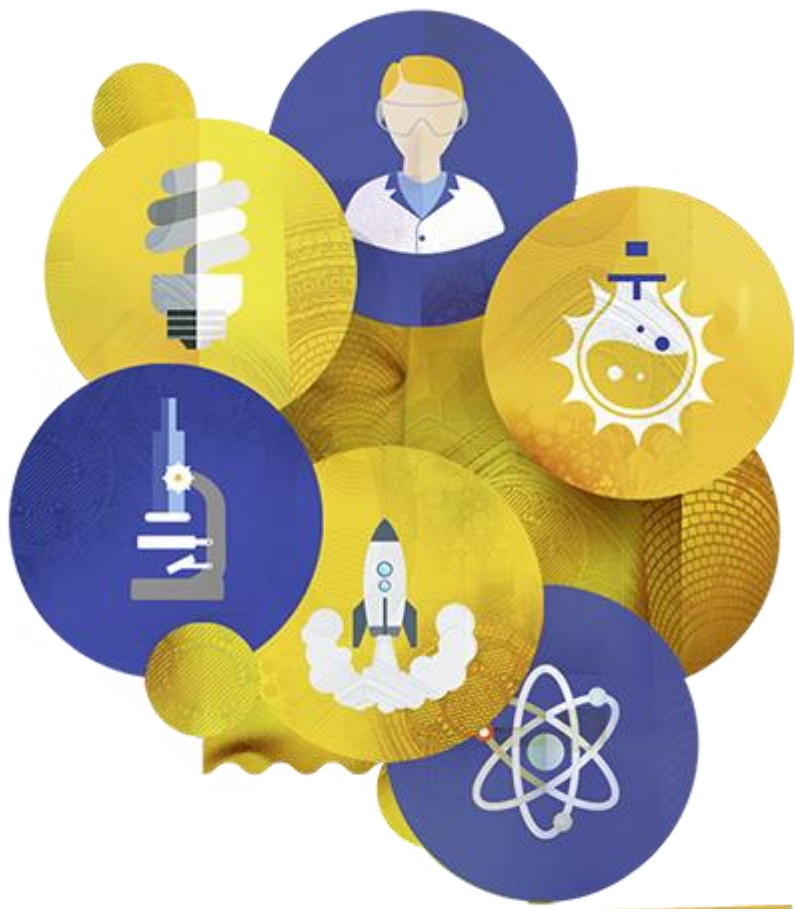


- **La condivisione di una versione della pubblicazione su un repository dove la comunità di riferimento può commentare equivale all'Open Access?**
- **Se scelgo la Gold road devo caricare in ogni caso in un Repository istituzionale?**
- **Devo caricare nel repository istituzionale la versione peer reviewed?**
- **Che cos'è un pre-print? che cos'è un post-print? che cos'è la versione editoriale? Va bene se scansio il cartaceo e lo metto in IRIS?**
- **A che cosa serve un Data Management Plan (DMP)? Quali vantaggi offre?**
- **Come si scrive un DMP?**
- **Dove posso depositare i miei dati?**

I Progetti Europei



- **I libri o le parti di libri prodotti su progetto vanno in Open Access?**
- **Se è previsto un brevetto, è meglio scegliere l'opt - out dalle pubblicazioni Open?**
- **Mi sono dimenticato di pubblicare open access e sono già passati i 6 mesi dalla pubblicazione. La pubblicazione riguarda un progetto europeo. Cosa posso fare?**
- **ResearchGate è in linea con le richieste di H2020 in relazione agli obblighi relativi all'Open Access?**



HORIZON EUROPE

Prospettive Horizon Europe



Numeri

- 76 nuove domande e 111 domande totali
- 8 aree: I falsi miti; Peer review e Impact Factor; La proprietà intellettuale e il contratto con l'editore; Quello che i ricercatori non sanno; I progetti Europei; Considerazioni Individuali; Open Science; Fair data e research data management;



Sezione: Open Science

- ▮ Qual è il rapporto fra open access e open science?
- ▮ Citizen science: cos'è?
- ▮ Come integrare la prospettiva e pratica OS nella progettazione ai fini di una positiva valutazione dell'eccellenza?
- ▮ Cosa è l'open science e quali ambiti della ricerca coinvolge?
- ▮ Cosa sono le Open educational resources?
- ▮ Quale rapporto tra Open Science e Open Innovation?



Sezione: FAIR data e research data management

- ❏ Che cosa si intende per dati della ricerca?
- ❏ Che cosa si intende a che servono i metadati in un DMP?
- ❏ A che cosa serve un DMP (recuperare attuale)?
- ❏ Data: as open as possible, as closed as necessary
- ❏ I dati della ricerca includono i raw data? Quali sono le differenze?
- ❏ Il DMP prevede studi statistici e se si quali? Nella formulazione di un DMP, in che modo i dati vengono gestiti? In un DMP, quale potrebbe essere l'approccio alla gestione dei metadati?
- ❏ Chi deve redigere un DMP?
- ❏ Quali sono i tools a disposizione per rendere i miei dati FAIR?
- ❏ Perché FAIR data management?
- ❏ A chi mi rivolgo in Ateneo per redigere un DMP?
- ❏ Strumenti per redigere un DMP
- ❏ Data Availability Statement: è obbligatorio inserirla nell'articolo?
- ❏ Come faccio a fornire le informazioni necessarie per validare i risultati di un articolo? R: parlare di data repositories e data availability statement
- ❏ A cosa devo prestare attenzione quando riutilizzo i dati di altri?
- ❏ Anonimizzare o pseudonomizzare: quando?
- ❏ Che si intende per Research Data Management?
- ❏ Differenza tra FAIR e OPEN per i dati
- ❏ I miei dati non sono di qualità (standardizzati o validati). Pubblicarli o condividerli è utile o "dannoso"?
- ❏ Quando devo rivolgermi al comitato etico o al DPO?
- ❏ Cosa significa dati FAIR? Che differenza c'è tra dati FAIR e dati OPEN? E' possibile includere un esempio pratico su come rendere FAIR i data?
- ❏ Quali licenze possono essere utilizzate per la pubblicazione dei dati?
- ❏ DATI - FAIR significa OPEN? Come posso proteggere la confidenzialità delle informazioni?



Citizen Science: Definition

- ▣ **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. (*White paper on Citizen Science*)
- ▣ **Citizen Science** is “scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions.” (*Oxford English Dictionary List of New Words, 13.09.2014*)
- ▣ **Citizen Science** [...] covers a range of different levels of participation: from raising public knowledge about science, encouraging citizens to participate in the scientific process by observing, gathering and processing data, right up to setting scientific agenda and co-designing and implementing science-related policies. (*EC, Horizon 2020, Science with and for society Work Programme 2018-2020, p.30*)



Citizen Science: Definition

- ❏ **Citizen Science** is “the collection and analysis of data relating to the natural world by members of the general public, typically as part of a collaborative project with professional scientists.” (*Oxford English Dictionaries*)
- ❏ **Citizen science** describes the engagement of people in scientific processes who are not tied to institutions in that field of science. Participation can range from the short-term collection of data to the intensive use of leisure time in order to delve deeper into a research topic together with scientists and/or other volunteers. Although many volunteer scientists do have a university degree, this is not a prerequisite for participating in research projects. However, it is important that scientific standards are adhered to. This pertains especially to transparency with regard to the data collection methodology and the open discussion of the results. (*Green Paper CS Strategy 2020 for Germany, p. 13*)



Why Citizen Science?

- 1. Citizen Science increases scientific literacy and critical faculties**, so the public can discern between fake news and scientific facts like climate change or evolution, or contribute to increased consciousness among citizens of social conditions that influence their life and well-being
- 2. Citizen Science can democratise the research process.** By conceptualising Citizen Science as part of Open Science and therefore interlinked with Open Innovation and Open to the World (3Os), over the coming years, citizens will be playing an expanded role in scientific research and will contribute more actively to defining the research agenda, and can contribute to strengthen the social voices of the most vulnerable, stigmatized and often marginalized citizens in public policy, effectively helping to democratise science.



Why Citizen Science?

- 3. Citizen Science generates new knowledge and enables new forms of research.** As a method of “crowdsourcing research” by using “idle brains” of the citizens Citizen Science offers new potential in areas where it would be impossible to get all the information/ data, for example by collecting data “for free” in an unconceivable amount and providing perspectives and experiences professional scientists otherwise would not have.
- 4. Citizen Science can motivate young people to follow scientific careers.** When pupils get in touch with science at an early age they are more likely to continue being interested and willing to intervene in science when it comes to choosing their careers.



Why Citizen Science?

5. **Citizen Science can expand the skill set of researchers.** By engaging with citizen scientists (academic) scientists will learn a range of new skills especially in the area of science communication



- I progetti di Citizen science coinvolgono attivamente i cittadini in attività scientifiche che generano nuova conoscenza o comprensione.** *I cittadini possono agire come contributori, collaboratori, o responsabili di progetto e ricoprono un ruolo significativo nel progetto.*
- I progetti di Citizen Science producono un risultato scientifico originale.** *Ad esempio, fornire una risposta ad un quesito di ricerca o mettere in pratica azioni di conservazione, decisioni gestionali o politiche ambientali.*
- Sia gli scienziati professionisti sia i cittadini coinvolti traggono vantaggio dal prendere parte a progetti di Citizen Science.** *I vantaggi possono includere la pubblicazione dei risultati di una ricerca, opportunità di apprendimento, piacere personale, benefici sociali, soddisfazione per aver contribuito a fornire una evidenza scientifica per, ad esempio: trovare risposte a questioni di rilevanza locale, nazionale e internazionale e, attraverso queste, avere l'opportunità di influire sulle politiche di settore.*
- Le persone coinvolte in progetti di Citizen Science possono, se vogliono, prendere parte a più fasi del processo scientifico.** *Questo può includere lo sviluppo di quesiti di ricerca, mettere a punto un metodo, raccogliere e analizzare dati e comunicare i risultati.*
- Le persone coinvolte in progetti di Citizen Science ricevono feedback.** *Ad esempio, come i loro dati vengono utilizzati e quali sono i risultati nel campo della ricerca, politico e sociale.*
- La Citizen Science è considerata una metodologia di ricerca come qualunque altra, con limiti e margini di errore che devono essere considerati e tenuti sotto controllo.** *Tuttavia, a differenza delle metodologie tradizionali di ricerca, la Citizen Science fornisce opportunità di un ampio coinvolgimento del pubblico e di democraticizzazione della scienza.*
- Dati e metadati provenienti da progetti di Citizen Science sono resi pubblicamente disponibili e, ove possibile, i risultati sono pubblicati in un formato di libero accesso (open access).** *La condivisione dei dati può avvenire durante o dopo il progetto, a meno che esistano motivi di sicurezza o privacy che lo impediscano.*
- Il contributo delle persone coinvolte in progetti di Citizen Science viene riconosciuto ufficialmente nei risultati dei progetti e nelle pubblicazioni.**
- I programmi di Citizen Science vengono valutati per il loro risultato scientifico, per la qualità dei dati, l'esperienza dei partecipanti e l'ampiezza dell'impatto sociale e sulle politiche di settore.**
- I responsabili di progetti di Citizen Science prendono in considerazione aspetti legali ed etici relativi a copyright, proprietà intellettuale, accordi sulla condivisione dei dati, confidenzialità, attribuzione e impatto ambientale di ogni attività.**

Ten principles of citizen science



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





ECSA characteristics of Citizen Science



Version 1, April 2020

The five areas into which the characteristics fall are as follows:

- ↗ Core concepts.
- ↗ Disciplinary aspects.
- ↗ Leadership and participation.
- ↗ Financial aspects.
- ↗ Data and knowledge.

ECSA's characteristics of citizen science

Introduction

Citizen science is a common name for a wide range of activities and practices. It is possible to understand it by considering the characteristics of those activities and practices, which are described in this document. These are found in different scientific disciplines – from the natural sciences to the social sciences and the humanities – and within each discipline, the interpretation of citizen science can be slightly different. Yet despite these differences, citizen science is an emerging area of research and practice, with evolving standards on which different stakeholders are developing methodologies, theories and techniques. It is, therefore, useful to establish some level of shared understanding, across disciplines and practices, as to what to expect from an activity or a project that is set out to be a citizen science one.

There is little doubt that a project with an open call to a wide range of volunteers to take part in either data collection or data analysis of a clearly defined research hypothesis will be recognised as citizen science. However, this is only one type within a large set of activities, practices and forms of participation, resulting in diverging views about what is – and isn't – citizen science. Because of these differences in disciplinary and cultural contexts, attempting to define a universal set of rules for exclusion or inclusion is difficult, and might even limit the advancement of the field.

Instead, this document attempts to represent a wide range of opinions in an inclusive way, to allow for different types of projects and programmes, where context-specific criteria can be set. The characteristics outlined below are based on views expressed by researchers, practitioners, public officials and the wider public. Our aim is to identify the characteristics that should be considered when setting such criteria (e.g. a funding scheme), and we call upon readers to determine which subset of these characteristics is relevant to their own specific context and aims.



Citizen Science: why is so important

“Citizen Science can contribute to the Commission’s goal of Responsible Research and Innovation, as it reinforces public engagement and can redirect research agendas toward issues of concerns to citizens.”

“This kind of Citizen Science is increasingly on the agenda and it is planned that future work programmes of Horizon 2020 will continue to support relevant initiatives at EU level.”

[EC, Strategy on 3 O’s: Open Innovation/Open Science/Open to the World
– a vision for Europe]



Citizen Science level of engagement

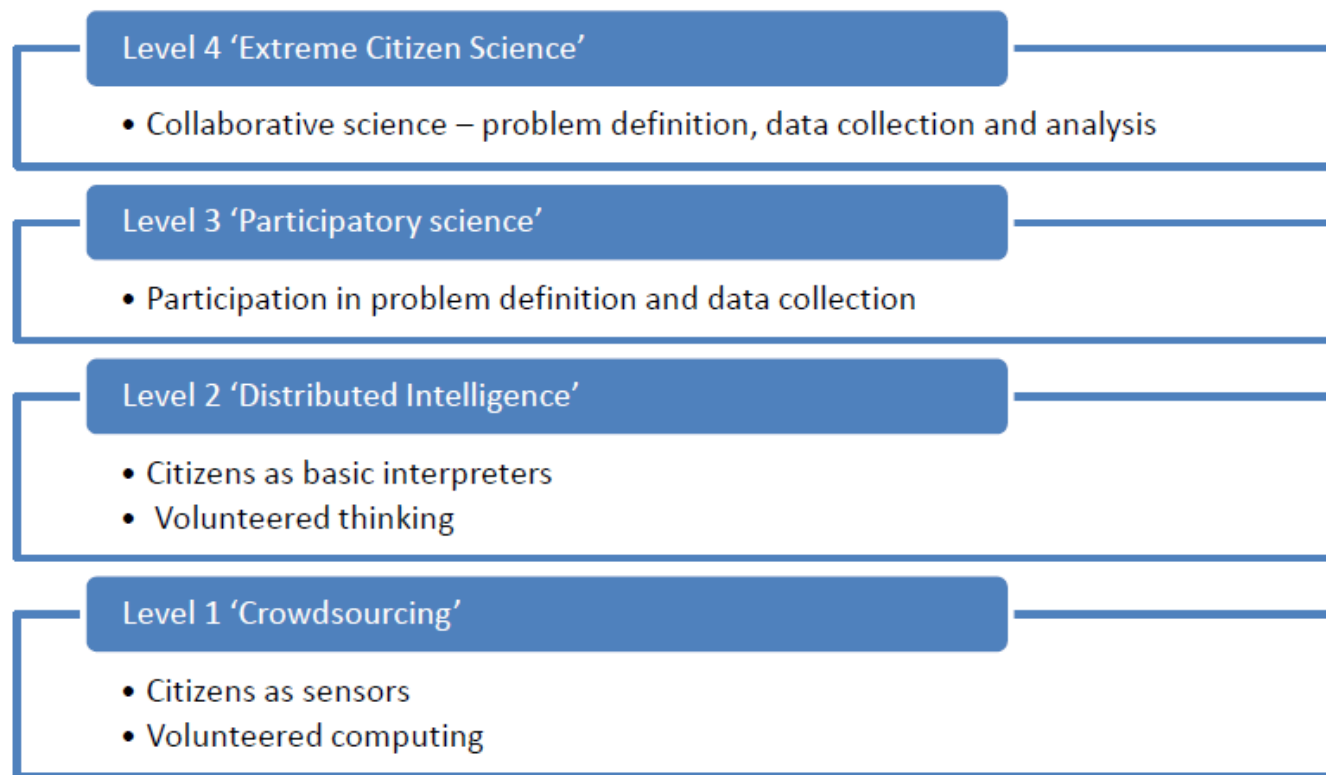


Figure 2 – Levels of participation and engagement in Citizen Science projects

Sui, D.Z., Elwood, S. and M.F. Goodchild (eds.), 2013. Crowdsourcing Geographic Knowledge. Berlin: Springer



MODELS OF CITIZEN ENGAGEMENT IN SCIENCE



VALUES

ATTRIBUTES



Open
(culture)

- ♦ Trusted
- ♦ Transparent
- ♦ Global

- ♦ Engaging
- ♦ Self-learning
- ♦ Accessible

- ♦ Reusable
- ♦ Participatory
- ♦ Collaborative



Social
(by all/for all)

- ♦ Co-created
- ♦ Amateur
- ♦ Scattered

- ♦ Collective
- ♦ Democratic active
- ♦ Public assessment

- ♦ Creative
- ♦ Inclusive



Digital
(infrastructure)

- ♦ Powerful
- ♦ Ubiquitous
- ♦ Pervasive
- ♦ Massive

- ♦ Immediate
- ♦ Traceable interactions
- ♦ Networks

- ♦ Devices
- ♦ Empowerment
- ♦ Effective

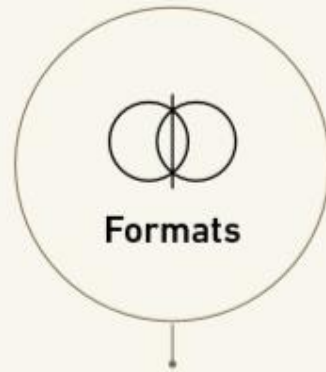


Research
(innovative)

- ♦ Unexplored
- ♦ Inspiration for innovations
- ♦ Transdisciplinary

- ♦ Innovative
- ♦ Educational
- ♦ Common
- ♦ Responsible

- ♦ Sustainable
- ♦ Skilled
- ♦ Experimental



Research driven / socially driven

Online / offline

Amateur / Professional

Formal / Informal

One-day / permanent

Local / global



Scientific

Inspirational

Educational

Social

Economic

Environmental

Political



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