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## Bibliodiversity, open science and research integrity

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# Bibliodiversity, open science and research integrity

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ENRIO Congress, online, Sep21



# Reproducibility of scientific results

→ [DOI:10.2777/341654](https://doi.org/10.2777/341654)

- **Reproducibility results from continuum of practices**
- **Is there a “crisis of reproducibility”?**
  - not so much
    - (see also Fanelli 2018  
[DOI:10.1073/pnas.1708272114](https://doi.org/10.1073/pnas.1708272114))
- **Policy should frame reproducibility as an ideal, with systemic action**
  - ... in which opening science takes a big part





# Promoting RI: an expectation of OS

→ e.g. the French HE&R&I ministry's statement in 2018



"La science est un bien commun que nous devons partager le plus largement possible. Le rôle des pouvoirs publics est de rétablir la

## What is open science?

Qu'est-ce que la science ouverte ?

- **[Open science] is a lever for research integrity** and favors the confidence of citizens in science. It makes a scientific progress and a society's progress.

• **La science ouverte, c'est la diffusion sans entrave des publications et des données de la recherche.** Elle s'appuie sur l'opportunité que représente la mutation numérique pour développer l'accès ouvert aux publications et – autant que possible – aux données de la recherche.

• **Son objectif** : faire sortir la recherche financée sur fonds publics du cadre confiné des bases de données fermées. Elle réduit les efforts dupliqués dans la collecte, la création, la maintenance et l'actualisation des données. Elle contribue à l'efficacité de la

est plus rapide utile à

économiques et sociaux, en France, dans les pays développés et dans les pays en développement.

• **Elle constitue un levier pour l'intégrité scientifique** et favorise la confiance des citoyens dans la science. Elle constitue un progrès scientifique et un progrès de société.





# Exploring the connection between RI & OS

→ see *Lex Bouter*, 1<sup>st</sup> ENRIO Congress

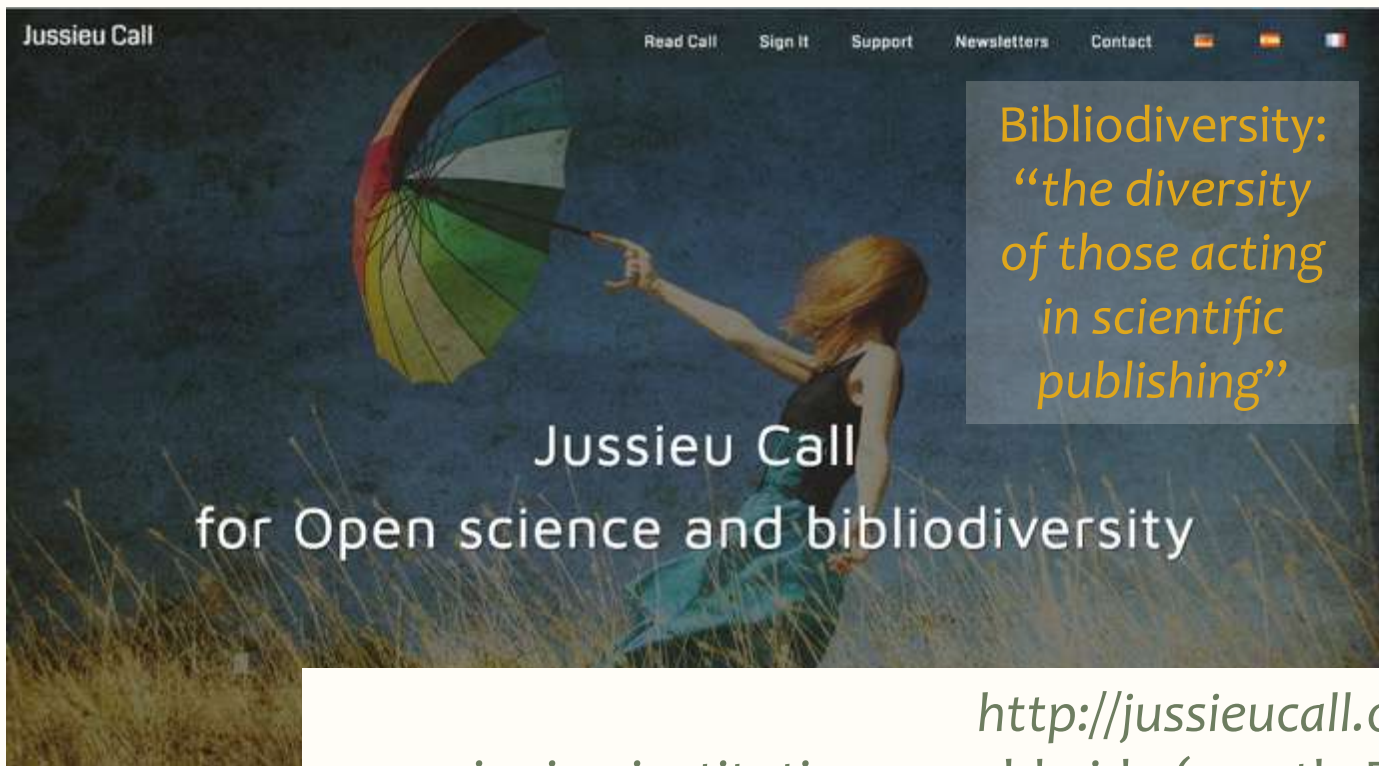


## *Recent evolution in views on how to foster Research Integrity*





# “Open science is a lever for research integrity” → to what extent? the case of bibliodiversity



Bibliodiversity:  
“the diversity  
of those acting  
in scientific  
publishing”

Jussieu Call  
for Open science and bibliodiversity

<http://jussieucall.org>

~120 signing institutions worldwide (mostly FR)





# The Jussieu call, 2017 (in brief)

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1. Open Access must be complemented with support for bibliodiversity;
2. The development of innovative scientific publishing models must be a budget priority;
3. Experiments should be encouraged in writing practices, refereeing, content editorial services and additional services;
4. The research evaluation system should be thoroughly reformed and adapted;
5. More investment efforts in open source tools should be made and coordinated;
6. [...]
7. [...]
8. Priority should be given to business models that do not involve any payments, neither for authors nor for readers.

<http://jussieucall.org>





# The Jussieu call, 4 years later

## – The French national fund or open science (FNSO)

- Under the aegis of the 1<sup>st</sup> National Plan for Open Science (2018)
- Aims at reducing the editorial concentration and setting up an ecosystem for responsible scholarly publishing
  - *Diamond OA, new networked services, etc.*
- 1<sup>st</sup> call (Dec19): 22 projects funded, 2.6M€
  - *5 infrastructures, 7 platforms, 10 editorial initiatives*
- 2<sup>nd</sup> call (Jan21): results due early Oct21
- Similar initiatives in other countries (e.g. <https://journal.fi/>)

<http://jussieucall.org>

## – But opening science is not just about promoting OA

- A bunch of services covering the entire scholarly ecosystem
- The 2<sup>nd</sup> National Plan for Open Science (2021)
  - *“France is committed to ensuring that the results of scientific research are open to all, researchers, companies and citizens, without hindrance, without delay, without payment”*







# Opening science is not just about OA

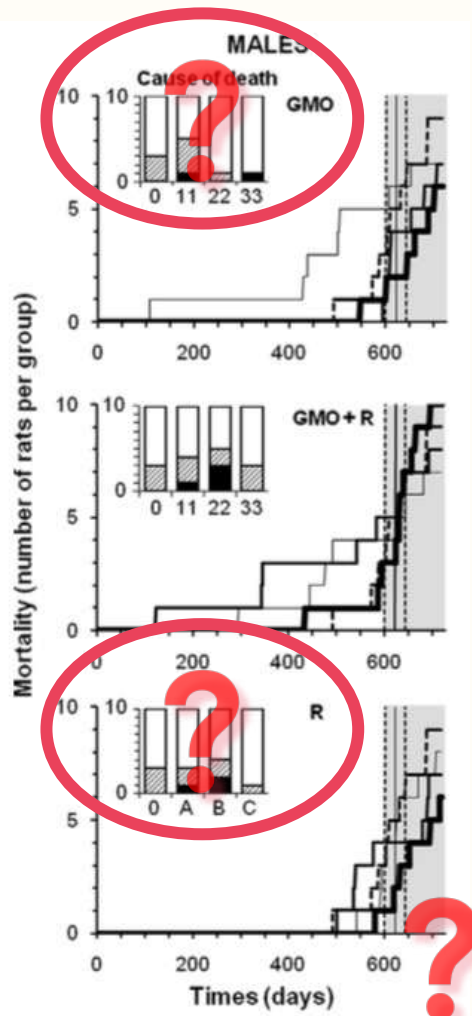
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- **Can quality and integrity be certified**
  - In published articles?
  - In methods and protocols?
  - In codes and software?
  - In data?
  - Etc.



# Certification of published articles

→ *revisit peer-review*



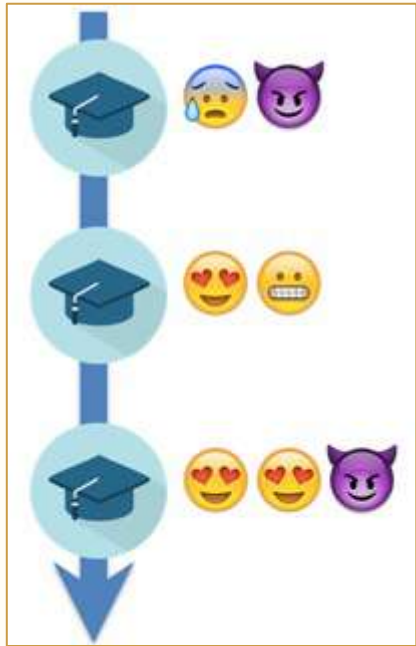


# Peer-review

→ a solid ground to ensure publication quality through scholarly debate

- No doubt!
- But a process that is
  - One-shot
  - Person-dependent
  - Opaque
  - Redundant
  - Sterile

- Post-publication PR
- Crowd-based PR
- Open PR
- Citable PR
- Non-anonymous PR





# Open peer review is not always sufficient → *but at least it is transparent*

## – The 2020 push-scooter hoax

- A grossly fake article
- It was retracted
  - *and substracted...*
  - *and its title truncated...*
- An open review process
  - *It is OK at 1<sup>st</sup> sight*
    - 3 experts (?), 3 editors
    - True exchanges with the editor
    - A decision made

### Editor #1:

“Only I have a question. In the manuscript say: the authors were the ethics committee with some friends. [...]”

## Asian Journal of Medicine and Health

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### Retracted: SARS-CoV-2 was Unexpectedly...

Willard Oodendijk ; Michaël Rochoy; Valentin Ruggeri; Florian Cova; Didier Lembrouille; Sylvano Trottinetta; Otter F. Hantome; Nemo Macron; Manis Javanica

Asian Journal of Medicine and Health, Page 14-21

Published: 15 August 2020

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### Abstract

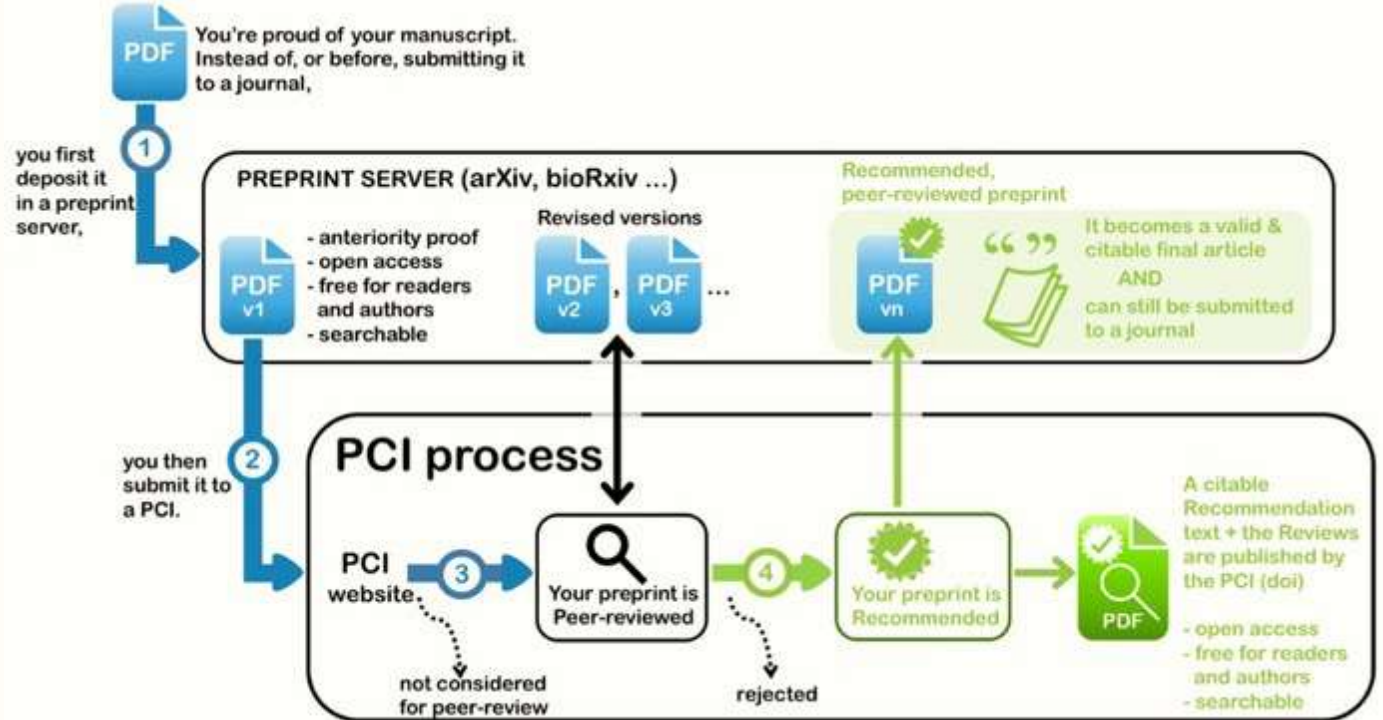
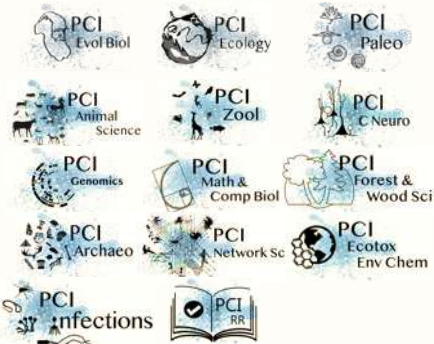
This article was retracted after reporting of serious scientific fraud.



# Ex.: Peer Communit(ies) In...

→ *renew the peer-reviewing process based on preprints*

**PCI**  
peercommunityin.org





# PCI to introduce the Peer Community Journal

PCI-recommended article



Final, citable article hosted by preprint server

Author's choice to submit to



OR



OR



**Peer Community Journal**  
Direct publication in diamond open access  
Starting fall 2021

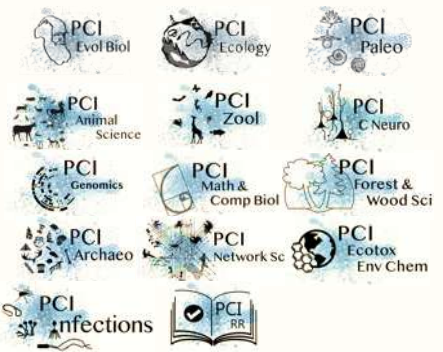
**PCI-friendly journals**  
- accept with no further peer review  
OR  
- fast response ( $\leq 5$  days) to presubmission enquiry  
OR  
- use of PCI evaluation if appropriate

**Other journals**

If not satisfied by the decision

If not satisfied by the decision

**PCI**  
peercommunityin.org





# Opening science is not just about OA

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  - Etc.



# Certification of the methods and protocols



- **The lack of details on methods and protocols is a recognized source of lack of reproducibility**
- **Publication (and peer review) of protocols**
  - Now many dedicated journals (including OA!)
  - Still an uncommon practice
- **Registered reports**
  - Also reduce the bias against negative results







# Reproducibility & replicability

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- **CASCaD (Certification Agency for Scientific Code and Data)**
  - <https://www.cascad.tech/>
  - A non-for-profit certification agency created by scholars
  - Re-run the code and data and report any discrepancy
    - *"same data + same method = same results"*
  - Allows researchers to signal the reproducibility of their work
  - The CASCaD service does not cover
    - *The quality of the scientific results displayed in the article*
    - *The quality of the code or data provided by the authors*
    - *Other disciplines than economics and management sciences*
- **ReScience C**
  - A (diamond OA) journal that encourages the replication of already published studies (in computational research)
  - See See DOI:[10.7717/peerj-cs.142](https://doi.org/10.7717/peerj-cs.142)



# Opening science is not just about OA

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# Certification of data quality and integrity

- **Data (experimental/observational) is key in research**
  - A key for research integrity of the associated publications
    - *Selection / Beautification / Falsification / Fabrication*
    - *Making data available to reviewers and readers of the publications is certainly an asset for their proper auditing*
  - A key for the process of opening science
    - *FAIR research data is the target standard of all OS policies*
    - *But really... who wants to reuse falsified or fabricated data?*
  - How about data generated by / reused by citizens/stakeholders?
- **How to certify research data?**
  - Auditing / certification processes
    - *Beyond data journals*
  - Enhancement of metadata

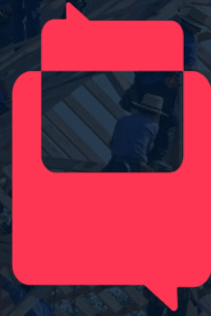




# Open science practices are generally favorable for research integrity

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- **Opening and resetting the publication process**
  - Will be difficult but probably feasible
    - *Promoting integrity by design remains a challenge*
  - Also an opportunity for re-appropriation of a key scholarly process
  - An arena of editorial experiments
    - *Adoption is another challenge*
- **However other key processes also need attention**
  - The situation is even more difficult for code, data, etc.
  - Citizen/participative science
    - Research integrity often "the elephant in the room"
- **Integrity is just one pillar of responsible science**
  - **RSiE** is committed to Explore / Engage / Guide / Equip



Thank you

