

*Open science and its impact
on career development:*
Introductory talk

Yves Deville

ECSS 2021

25 October 2021

Topics

- Open Science @ UCLouvain
- Impact of Open Science on career development
- Two challenges of Open Science
 - Training and awareness
 - Evaluation of research

Open Science @ UCLouvain

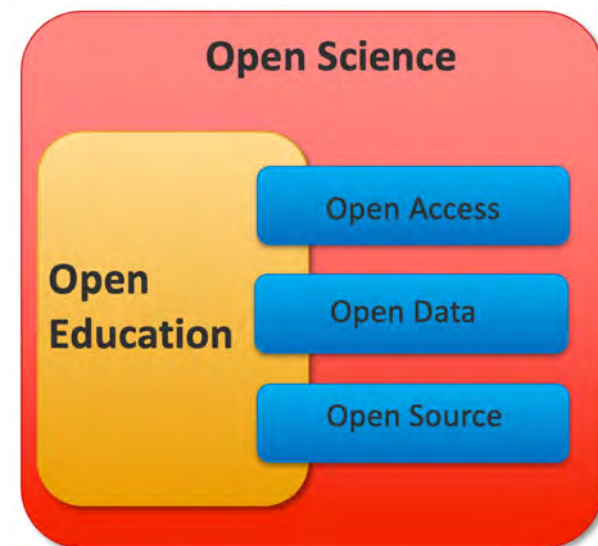
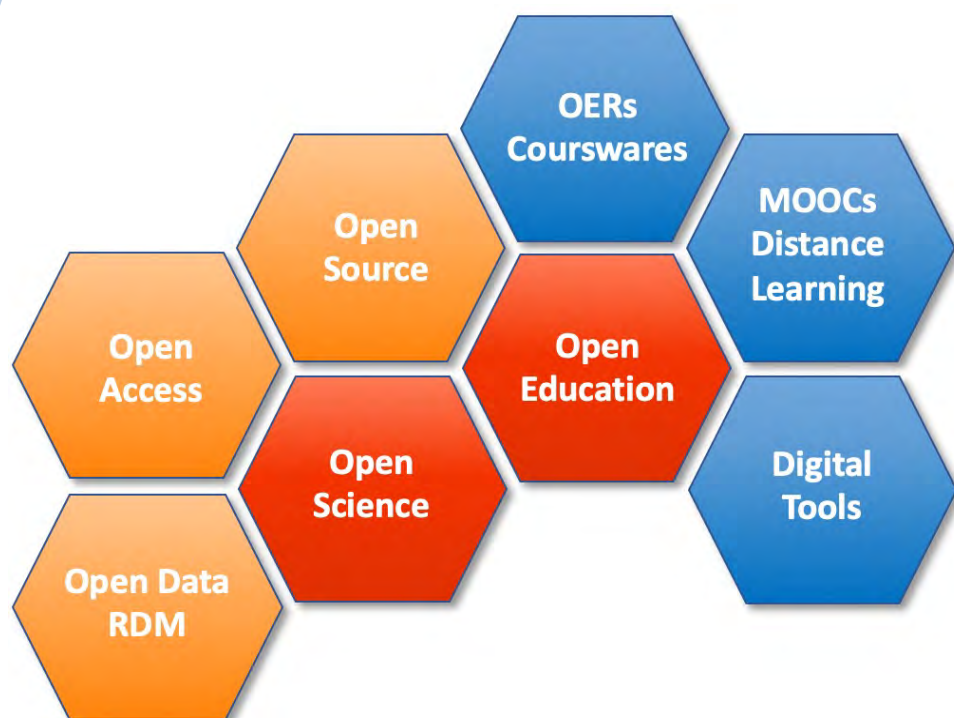
Open Education

- Make education more open, inclusive, mobile, and accessible to as many people as possible
- Reduce barriers to education and increase learning opportunities
- Support the production, use and sharing of educational resources and learning paths
- Mobility of educational content

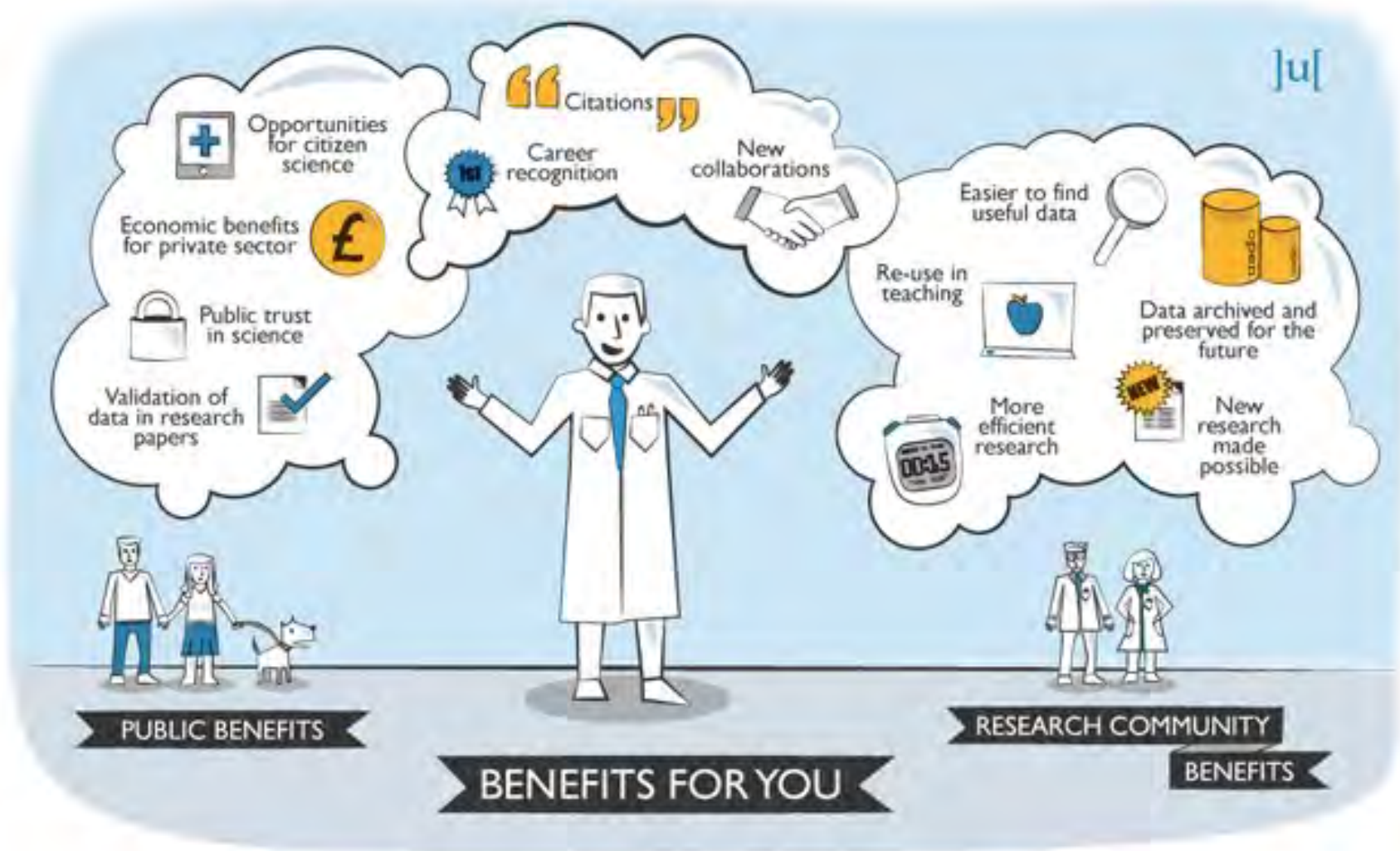
Open Science

- Make research, data and scientific dissemination accessible to all levels of a knowledge-seeking society
- Increase transparency, reuse, quality, cooperation, accountability and replicability of research
- Return ownership of research publications to researchers and the institution
- Increasing demand from funders

Open Science @ UCLouvain



Why Open Science ?



Impact on career development

- Citations
- Reputation
- Diffusion
- Efficiency
- Quality and Integrity
- Collaborations
- Social impact
- ...

Open Access	Open Data	Open Source
✓		
✓	✓	✓
✓	✓	✓
	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓

Training and awareness

PhD Students

- Doctoral classes

Research Labs

- Awareness seminars
- Adapted to the research domain of the public

Young recruited professor

- Seminars

Researchers and Staff

- Set of training modules related to Open Science

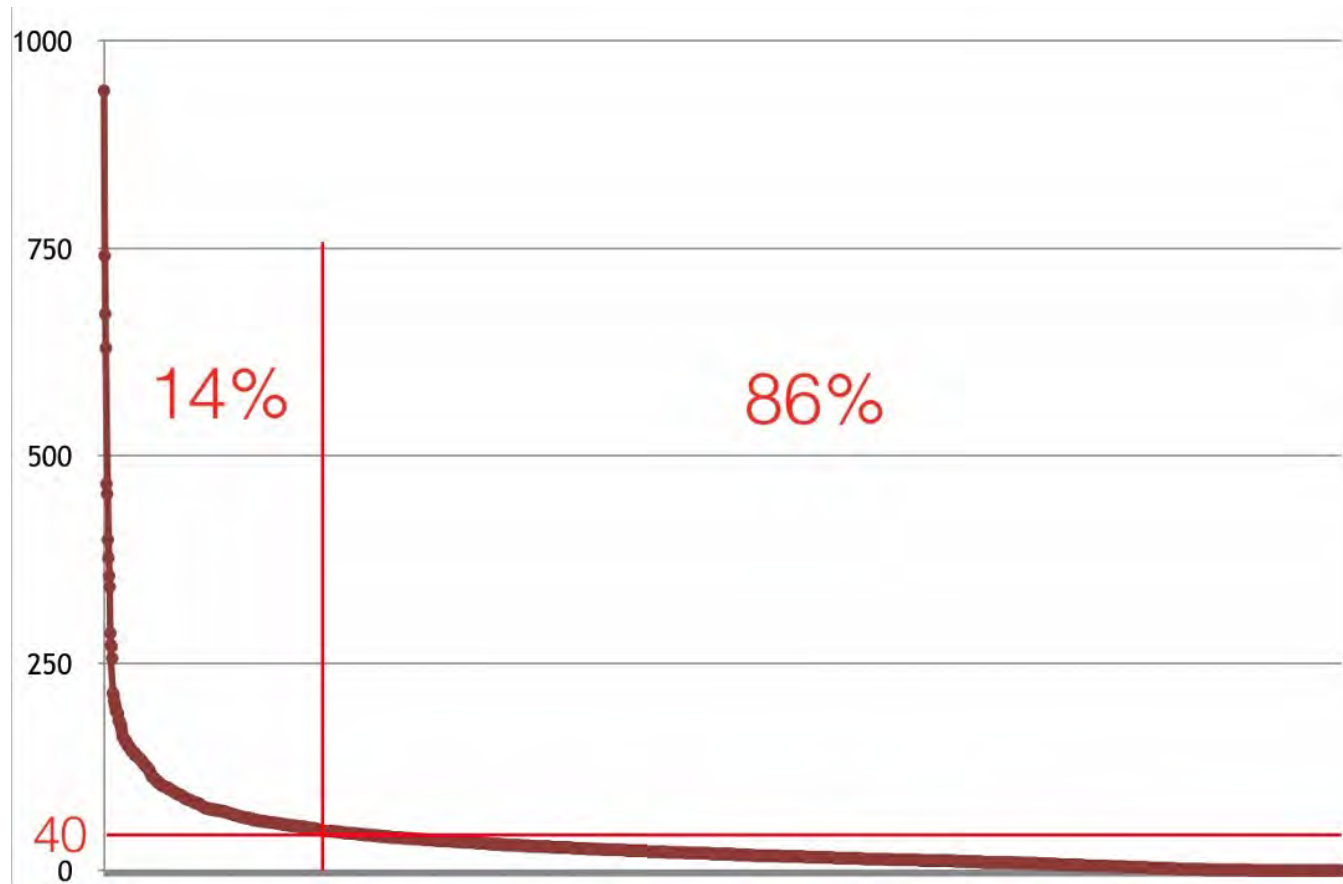
Students

- Awareness modules integrated in courses

Evaluation of Research

- Open Science will never prevail without a revision the way researchers are evaluated
- Qualitative versus quantitative criteria
- Impact is a good indicator, but how to really measure it ?
- Evaluation often reduced to quick proxies (Impact Factors, citations, ...)
- How evaluation take Open Science into account ?

The impact factor deception



Frequency of citations 2014 per article published in Nature (IF 40) in 2012-2013

bernardrentier.wordpress.com

THE EVOLUTION OF ACADEMIA

PUBLISH



PUBLISH
OR
PERISH



PUBLISH
IN HIGH IMPACT
JOURNALS
OR
PERISH



PUBLISH
FREQUENTLY IN
HIGH IMPACT
JOURNALS
AND
MAYBE
YOU WON'T
PERISH



[facebook.com/pedromics](https://www.facebook.com/pedromics)

Some existing initiatives in Research Evaluation

- DORA : San Francisco Declaration on Research Assessment (2013)
<https://sfdora.org/read/>
- Leyden manifesto for research metrics (2015)
<http://www.leidenmanifesto.org/>
- EC : Evaluation of Research Careers fully acknowledging Open Science Practices (2017)
<https://op.europa.eu/en/publication-detail/-/publication/47a3a330-c9cb-11e7-8e69-01aa75ed71a1/language-en>
- EUA : Research Assessment in the Transition to Open Science (2019)
<https://eua.eu/resources/publications/888:research-assessment-in-the-transition-to-open-science.html>
- EC : ERAC Guideline Paper Research evaluation in a context of Open Science and gender equality (2021)
<https://data.consilium.europa.eu/doc/document/ST-1201-2021-INIT/en/pdf>
- And many others...

DORA : San Francisco Declaration on Research Assessment

- 1. Do not use journal-based metrics**, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions.
- 4. Be explicit** about the criteria used to reach hiring, tenure, and promotion decisions, clearly highlighting, especially for early-stage investigators, that the scientific content of a paper is much more important than publication metrics or the identity of the journal in which it was published.
- 5.** For the purposes of research assessment, consider the **value and impact** of all research outputs (including datasets and software) in addition to research publications, and consider a broad range of impact measures including qualitative indicators of research impact, such as influence on policy and practice.
- 15.** When involved in committees making decisions about funding, hiring, tenure, or promotion, make assessments based on **scientific content rather than publication metrics**.
- 16.** Wherever appropriate, cite primary literature in which observations are first reported rather than reviews in order to give credit where credit is due.
- 17.** Use a range of article metrics and indicators on personal/supporting statements, as evidence of the impact of individual published articles and other research outputs [11].
- 18.** Challenge research assessment practices that rely inappropriately on Journal Impact Factors and promote and teach best practice that focuses on the value and influence of specific research outputs.

<https://sfdora.org/read/>

Leyden Manifesto

10 principles to guide research evaluation

1. **Quantitative evaluation should support qualitative**, expert assessment.
2. Measure performance against the research missions of the institution, group, or researcher.
3. Protect excellence in locally relevant research.
4. Keep data collection and analytical **processes open, transparent, and simple**.
5. Allow those evaluated to **verify data and analysis**.
6. Account **for variation by field** in publication and citation practices.
7. Base assessment of **individual researchers** on a qualitative judgement of their portfolio.
8. Avoid misplaced concreteness and false precision.
9. Recognize the systemic effects of assessment and indicators.
10. Scrutinize indicators regularly and update them.

<http://www.leidenmanifesto.org/>

EC Evaluation of research career

1. To change the culture and further engage the entire researcher community in the practice of Open Science, a more comprehensive recognition and reward system incorporating **Open Science must become part of the recruitment criteria, career progression and grant assessment procedures** for researchers at all levels
2. Where needed, there should be a review of **ERA policies, ERA roadmaps and National Action Plans through the lens of Open Science**. If necessary, policies must be updated in order to ensure compatibility with Open Science.
3. At European level all means to **encourage and incentivise researcher participation in Open Science** through support and funding mechanisms should be pursued.
4. The assessment of researchers during recruitment, career progression and grant evaluation should be structured to encompass the full range of their achievements including Open Science. This **multi-dimensional approach could be implemented using the instrument OS-Career Assessment Matrix (CAM)** that takes into consideration the full range of achievements to reflect diverse career paths. There should also be a validation process on the content and feasibility of the OS-Career Assessment Matrix (CAM) in researcher assessment at European, national, regional and organisational level as well as taking into account the wide spectrum of disciplines, research funding and research performing organisations.

<https://op.europa.eu/en/publication-detail/-/publication/47a3a330-c9cb-11e7-8e69-01aa75ed71a1/language-en>

ERAC : Evaluation in a context of Open Science and gender equality

- Foster the diversity of open research and innovation ecosystems using a diversity of evaluation methods and indicators to better recognize the diversity of research outputs and processes, as well as the diversity of researchers themselves
- Promote inclusiveness and collective involvement in the design of Open Science and research evaluation policies
- Encourage a responsible attitude in research evaluation
- Foster transparency in research evaluation as well as trustworthiness in the added value of Open Science
- Provide the right incentives through evaluation
- Create a virtuous circle between training and evaluation

<https://data.consilium.europa.eu/doc/document/ST-1201-2021-INIT/en/pdf>

Evaluation at UGent (Belgium)

1. The choice of an appropriate evaluation method for research is in line with the objective of the evaluation.
2. The evaluation takes into account the intended impact of the research; strictly academic, economic, societal, or a combination of these.
3. The evaluation takes into account the diversity between disciplines.
4. For each chosen evaluation method, the simplicity of the procedure is weighed up against the complexity of the research.
5. The evaluation criteria are drawn up and communicated to all stakeholders in advance.
6. There are sufficient experts on the evaluation committee who are in a position to adequately assess the quality of the research.
7. The above principles are implemented by means of a smart choice of evaluation indicators and by adopting a holistic approach to peer review.
8. Any committee or policy measure evaluating research, makes a best effort commitment to translate the above principles into practice.

<https://www.ugent.be/en/research/research-strategy/open-science.htm>

*Open science and its impact
on career development:*
Introductory talk

Yves Deville

ECSS 2021

25 October 2021