



UNIVERSITY OF  
CAMBRIDGE

Department of Chemistry

# How open are chemists? An academic librarian's perspective

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RSC Open Access Publishing for Chemistry  
10 November 2020

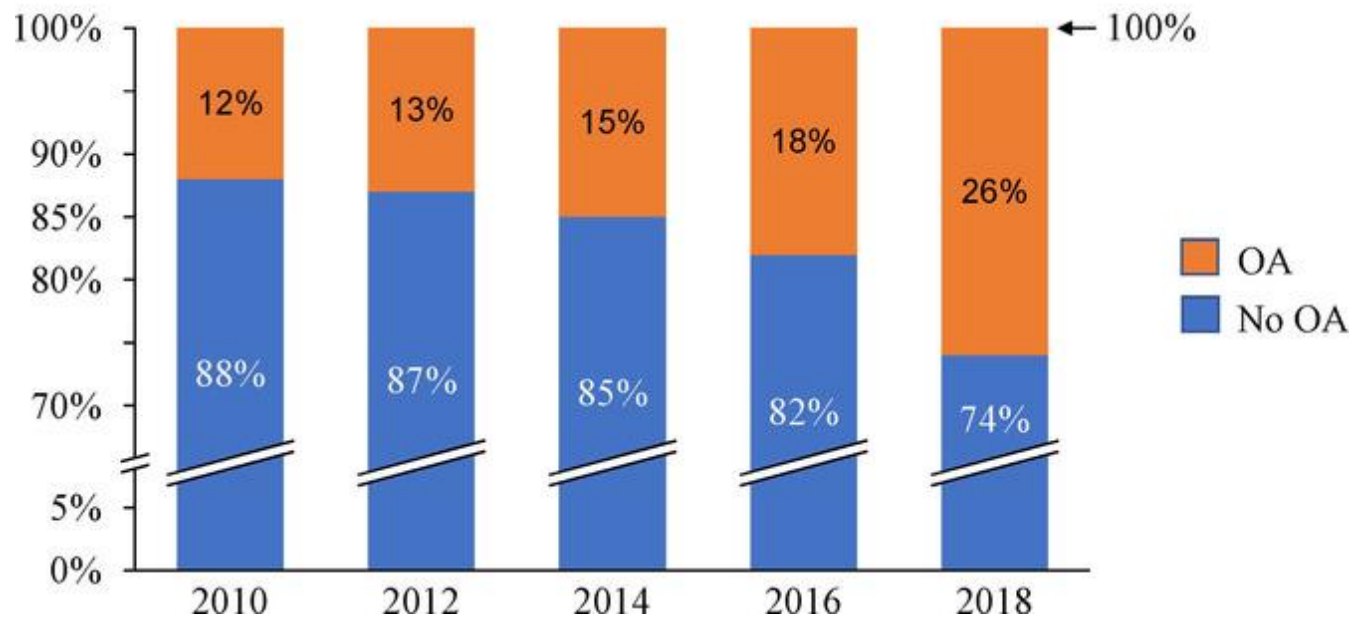
**green impact**

Silver Award



# Introduction

- Prevalence of OA publishing in chemistry
- Benefits of OA publishing
- Incentives for OA publishing
- Barriers to OA publishing
- Move towards open science/research
- Future developments in OA publishing



Fractions of open-access (OA, orange) manuscripts and non open-access manuscripts (No OA, blue) in the Web of Science category 'CHEMISTRY MULTIDISCIPLINARY' in the past decade. Data taken from Clarivate Analytics Web of Science.

# OA chemistry journals

## SCImago Journal and Country Rank

Journal Rankings on Chemistry (worldwide): 864 journals.

Top 50 in 2019, only 3 OA (*Nature Communications* #15, *ACS Central Science* #17, *Chemical Science* #25)

SJR World Report: % Open Access Output has risen from 15.09% in 2010 to 31.77% in 2018.

SCImago, (n.d.). SJR — SCImago Journal & Country Rank [Portal]. Retrieved 19 October 2020, from <http://www.scimagojr.com>.

# OA chemistry journals

**DOAJ (Directory of Open Access Journals)  
worldwide figures at 15 October 2020**

<https://doaj.org/>:

- 15,231 journals are OA
- 142 are Chemistry OA journals
- 0.92% of all OA journals are in Chemistry
- Medicine 822 journals = 5.4%
- Biology 341 journals = 2.2%
- Social Sciences 632 journals = 4.1%
- Technology 281 journals = 2.1%

**Date added to DOAJ:**

2020 = 22

2019 = 20

2018 = 16

2017 = 25

2016 = 13

2015 = 15

2014 = 4

2013 = 7

2014 = 4

# OA publications in science and technology

Trends for open access to publications (Open Science Monitor)

[https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science/open-science-monitor/trends-open-access-publications\\_en](https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science/open-science-monitor/trends-open-access-publications_en)

Chemical sciences:

Bronze OA 3.0%

Hybrid OA 3.4%

Gold OA 6.8%

Green OA 11.6%

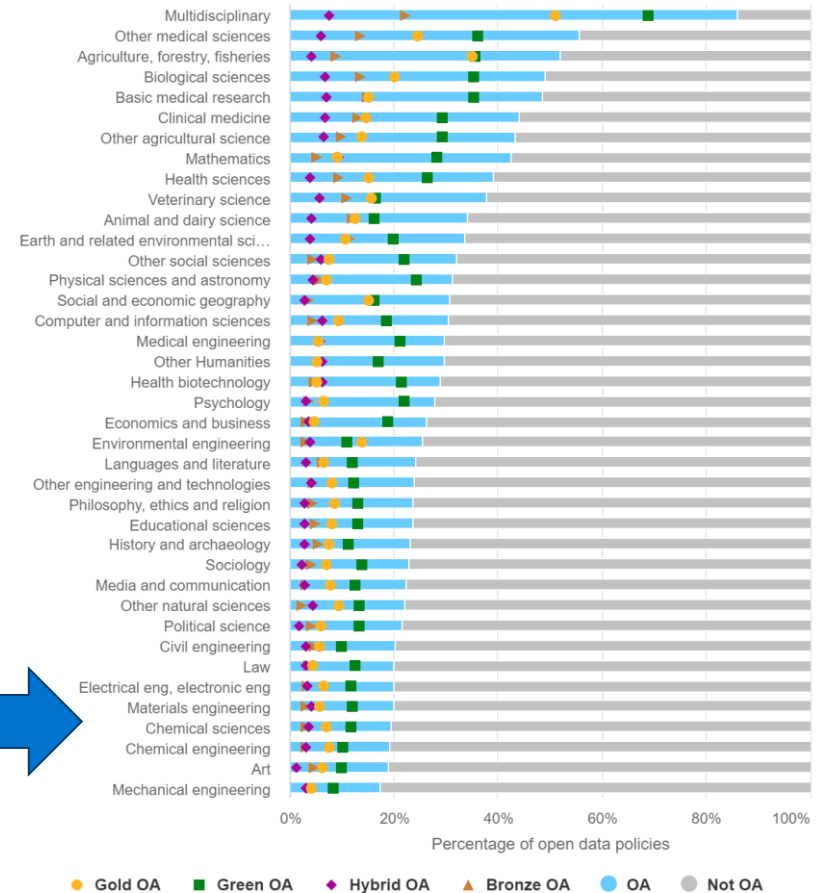
OA 19.4%

Not OA 80.6%



Percentage of Open Access publications by Fields of Science and Technology

Source: Consortium's own analysis - Reference date: 2009-2018



# Benefits of open access



CC-BY Danny Kingsley & Sarah Brown

# Incentives for OA publishing

- Policy landscape:
  - Funder mandates (Larivière & Sugimoto, 2018)
  - RCUK OA policy
  - REF OA policy
  - Publisher policies
  - University open access policies
  - Open research policies incl. data mandates
- OACA, Open Access Citation Advantage? (Piwowar *et al.*, 2018)



# Barriers to open access publishing

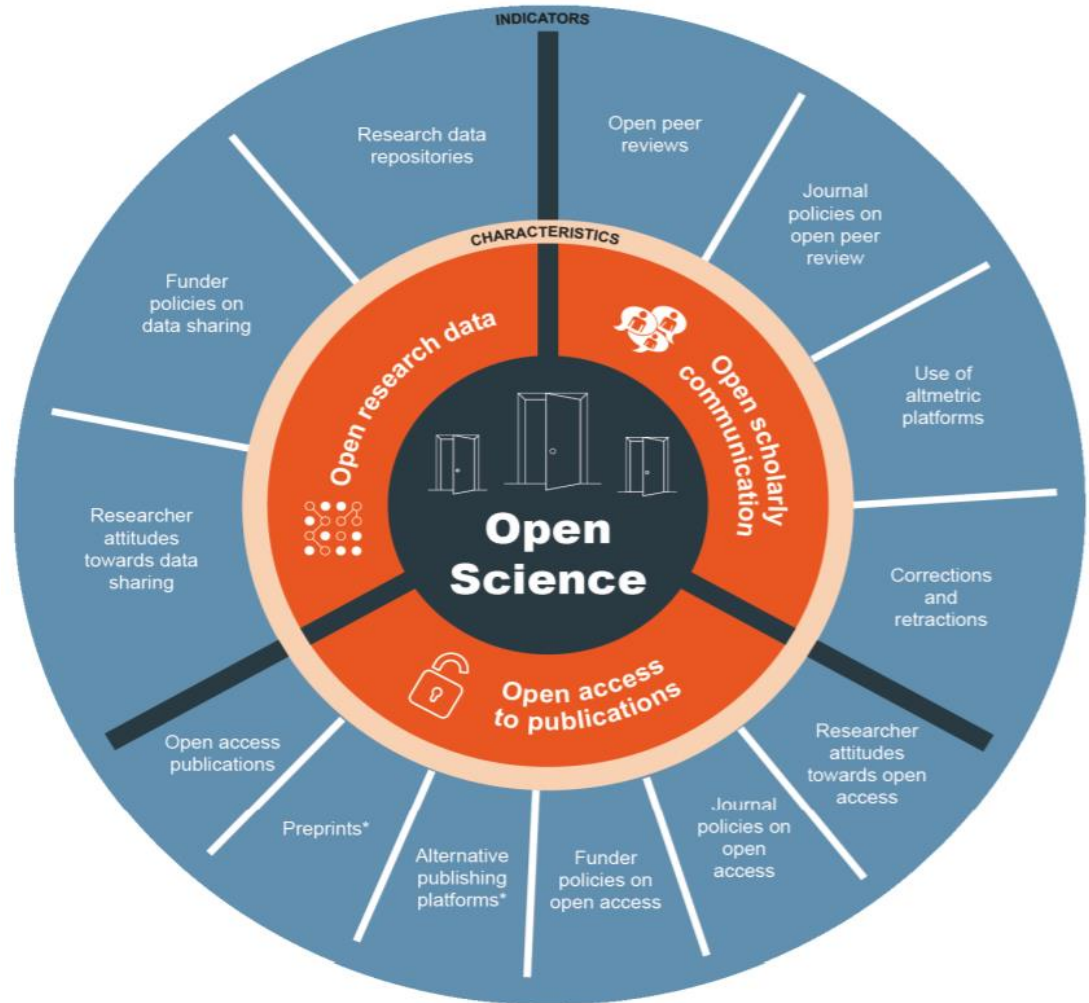
- Administrative burden
- Infrastructure
- Cost
- Industrial sponsors
- Research culture in chemistry (Rowley, *et al.*, 2017)
- Author behaviour and attitudes

# Open Science skills for researchers

*Providing researchers with the skills and competencies they need to practise Open Science, 2017*

[https://ec.europa.eu/research/open-science/pdf/os\\_skills\\_wgreport\\_final.pdf](https://ec.europa.eu/research/open-science/pdf/os_skills_wgreport_final.pdf)

**Figure 1.1:** Open Science “Wheel”, describing key Open Science characteristics and indicators. Created by the Open Science Monitor.



# LIBER Open Science Skills wheel

## Identifying Open Science Skills for Library Staff & Researchers

<https://libereurope.eu/blog/2020/03/10/open-science-skills-diagram/>.

<https://doi.org/10.5281/zenodo.3702400>, CC BY.



\* Discipline-specific skills needed to practice open science (does not include generic computer skills, wider librarianship skills and personal competencies)  
 - Mapped to LIBER OS Roadmap 7 focus areas, Digcomp 2.0 framework and FOSTER learning resources  
 - Produced by the LIBER Working Group on Digital Skills for Library Staff & Researchers with input from other LIBER Working Groups, 2020

# Future developments

- Rise of pre-prints in chemistry
- Plan S, and publisher agreements
- OA content as a resource

# Pre-prints

Coudert (2020)

- Upward trend in chemistry
- Servers now available
- Concerns and benefits
- Publisher policies

# Plan S, and publisher OA agreements

**cOAlition S** <https://www.coalition-s.org/>

“With effect from 2021, all scholarly publications on the results from research funded by public or private grants provided by national, regional and international research councils and funding bodies, must be published in compliant Open Access Journals, on Open Access Platforms, or made immediately available through Open Access Repositories without embargo”.

Funders include UKRI, Wellcome.

**Open access publishing agreements** focus on Gold OA.

# OA content

- **Browser plugins** e.g. Lean Library, OA Button, Google Scholar Button, Unpaywall, Kopernio, CORE Discovery, 1findr
- **OA content flagged everywhere!**
- **Directories** e.g. DOAJ, OpenDOAR
- **Pre-print repositories** e.g. ChemRxiv
- **Apps** e.g. Read by QxMD, Open Access Helper for iOS
- **Tools for analysing/reporting OA compliance/impact** e.g. Symplectic, Dimensions
- **OA policy information** e.g. Sherpa Fact/ROMEIO/Juliet
- **TDM applications** e.g. CORE Publisher connector, Crossref, PMC

# Summary

- OA publishing in chemistry is slowly increasing
- Make the OA publishing experience easier
- IP and OA
- Open research culture
- Rewards and incentives
- Strategy for culture change in open science



Image by Brian Nosek, CC BY 4.0.  
*Strategy for Culture Change* in open science  
<https://www.cos.io/blog/strategy-for-culture-change>



# References

- Coudert, F-X. (2020). The rise of preprints in chemistry. *Nature Chemistry*, 12: 499-502. <https://doi-org/10.1038/s41557-020-0477-5>
- European Commission (2017). *Providing researchers with the skills and competencies they need to practise Open Science: Open Science Skills Working Group Report*. DOI: 10.2777/121253. <https://op.europa.eu/s/onZf>
- Larivière, V. and Sugimoto, C.R. (2018). Do authors comply with mandates for open access? *Nature*, 562: 483-486. <https://doi-org/10.1038/d41586-018-07101-w>
- Novara, F.R. (2020). A big year for open access chemistry publishing. *ChemistryOpen*, 9(1): 4-7. <https://doi-org/10.1002/open.201900361>
- Piwowar, H. *et al.* (2018). The state of OA: a large-scale analysis of the prevalence and impact of Open Access articles. *PeerJ*, 6:e4375. <https://doi.org/10.7717/peerj.4375>
- Rowley, J. *et al.* (2017). Academics' behaviour and attitudes towards open access publishing in scholarly journals. *JASIST*, 68(5): 1201-1211. <https://doi.org/10.1002/asi.23710>

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