

History of open citations

What they are and why they are crucial for metrics-based research assessment

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RESEARCH CENTRE
FOR OPEN SCHOLARLY METADATA



DIPARTIMENTO DI FILOLOGIA CLASSICA E ITALIANISTICA



Scandalous references

“

In this open-access age, it is **a scandal** that reference lists from journal articles — core elements of scholarly communication that permit the attribution of credit and integrate our independent research endeavours — **are not readily and freely available for use by all scholars.**

D. Shotton (2013). Publishing: Open citations. Nature.
<https://doi.org/10.1038/502295a>

”

I know David since 2010 and we are both Directors of **OpenCitations** – and I know very well the origin of that frustration he highlighted as a scandal is his article

I will show how David came to that conclusion, and what it has happened next

Replication crisis in research assessment

“The replication crisis [...] is, as of 2020, an ongoing methodological crisis in which it has been found that many scientific studies are difficult or impossible to replicate or reproduce” – from https://en.wikipedia.org/wiki/Replication_crisis

It affects science, including the methods **we currently use** to assess research

Not only a critique to the ‘recipes’ used in research assessment, but also to the **lack of transparency** of the ‘ingredients’ used to compute recipes outcomes

We need a global community effort in the scholarly domain to put such ingredients to **the commons** – often they are pure facts, i.e. data that **cannot be copyrighted** such as **citations**, and often they are used in metrics-based research assessment

Citations as common good = open citations

The concept of open citations is strongly tied with that of **the Web**

Since 1989, the Web has drastically change the way we think academic publishing and science in general – they started to adopt **Web standards** to create and deliver their products quickly and to a broader audience

Standards (e.g. JATS), guidelines (e.g. FAIR), services (e.g. REST APIs) based on **Web technologies** have been proposed in the past 30 years to improve the discoverability of academic products and publications, to improve research practices and to allow reusability of scholarly data in different applicative contexts

Open citations are no exception

What is an open citation, really

A **citation** is a conceptual directional link from a citing entity to a cited entity



The **citation data** related to a particular citation must include:

- the *representation* of such a conceptual directional link
- the *basic metadata* of the citing entity and the cited entity

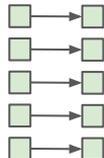
A bibliographic citation is an **open citation** when its data are

S. Peroni & D. Shotton (2018).
Open Citation: Definition.
<https://doi.org/10.6084/m9.figshare.6683855>

structured

```
"reference": [{
  "issue": "2",
  "key": "10.7717/peerj.4375/ref-11",
  "doi-asserted-by": "crossref",
  "first-page": "237",
  "DOI": "10.1002/asi.22963",
  "article-title": "Anatomy of green open access",
  "volume": "169",
  "author": "Björk",
  "year": "2014",
  "journal-title": "Journal of the Association for
},
...
```

separate



open

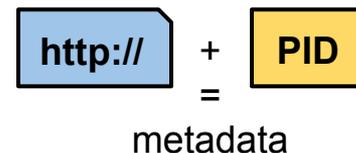


without
restrictions to
maximise reuse

identifiable

PID

available



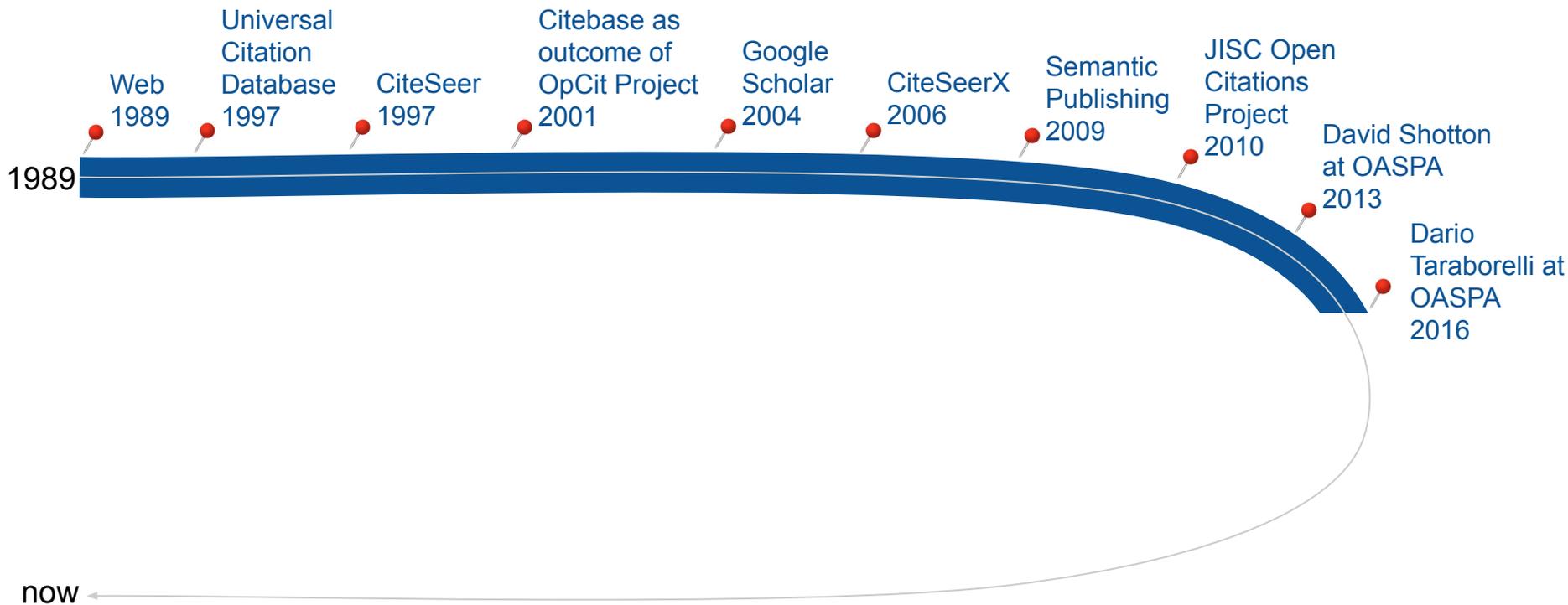
The origins

The first embryonal introduction of open citations is in Robert Cameron's visionary article published in 1997, in which he speculates about the existence of a **Universal Citation Database**

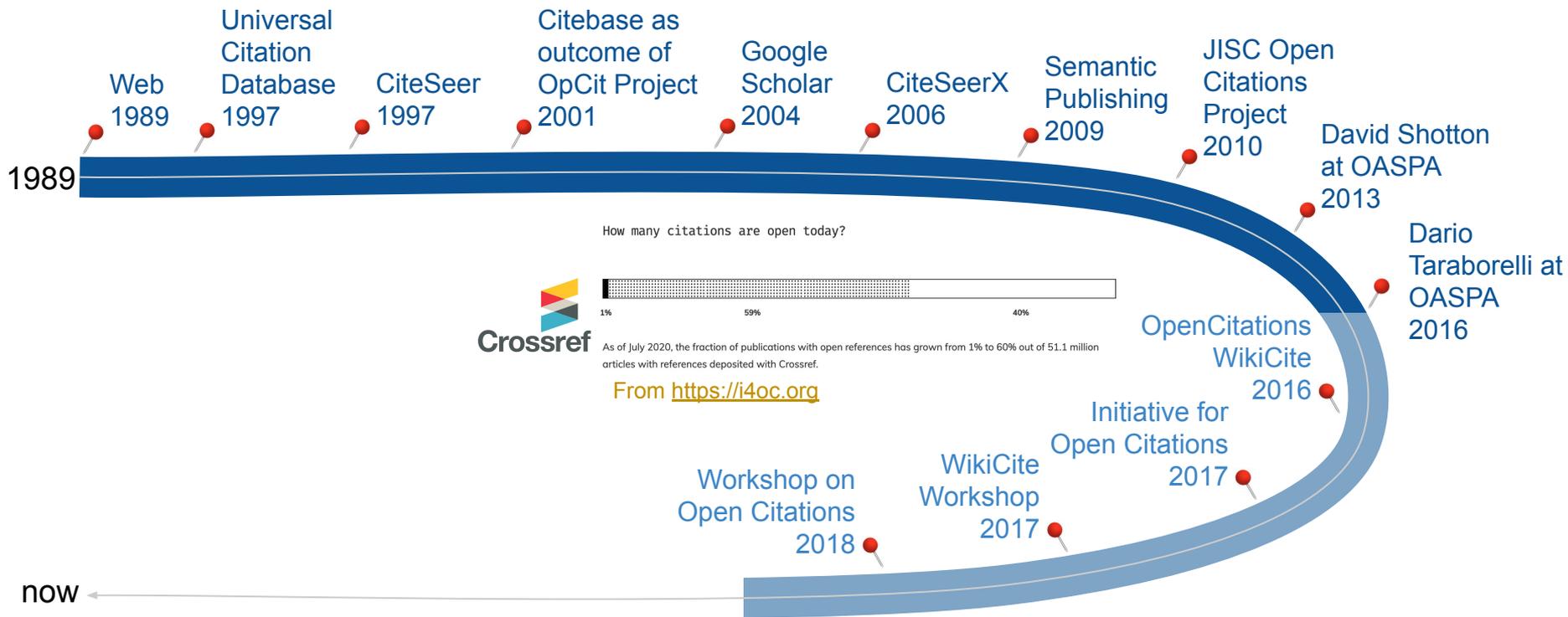
- Linking every scholarly work ever written
- Freely available over the Internet
- Updated every day
- Comprehensive (no selection of particular venues, all are included)
- All types of publications (from articles to working papers and preprints)
- All publications are equally visible (even if not equally accessible)
- Decentralised

R. D. Cameron (1997). A Universal Citation Database as a Catalyst for Reform in Scholarly Communication. *First Monday*. <https://doi.org/10.5210/fm.v2i4.522>

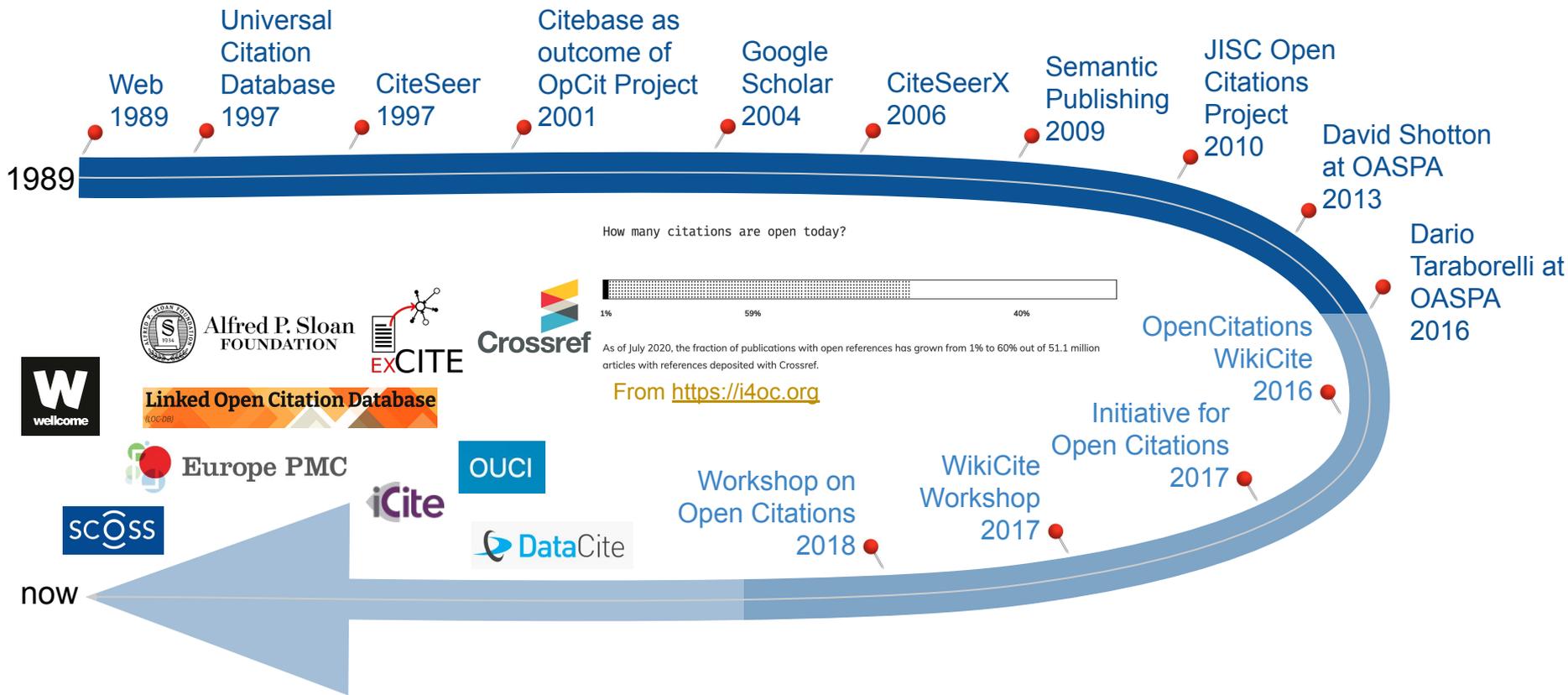
First take



Second take



Until now



Pushing for open data in research metrics

Paywalled and close citation data do not comply with the following principles – indeed such data are a threat to transparency, replicability and verifiability of research assessment exercises

“Assessment system for researchers and research institutions must be updated to **reflect the principles and practices of open science**”

National Plan For Open Science, <https://www.ouvrirelascience.fr/national-plan-for-open-science-4th-july-2018/>

“**Be open and transparent** by providing data and methods used to calculate all metrics”

San Francisco Declaration on Research Assessment, <https://sfdora.org>

“Provide the data under a license that **allows unrestricted reuse**, and provide **computational access** to data”

“Keep data collection and analytical processes **open, transparent and simple**”

Leiden Manifesto for Research Metrics, <http://www.leidenmanifesto.org/>

“Allow those evaluated to **verify data and analysis**”



Open citations = fairness

OpenCitations is a community-guided **infrastructure organization** dedicated to the publication of **open citation data** (i.e. CC0)

– Peroni & Shotton (2020). OpenCitations, an infrastructure organization for open scholarship.

Quantitative Science Studies. https://doi.org/10.1162/qss_a_00023

Institutions **can apply** for **membership** and thus support **OpenCitations** financially

- Supporting membership (€500 - €8,000 per year)
- Development membership (€8,000 - €30,000 per year)
- Strategic membership (more than €30,000 per year)

Also, institutions **can provide** **OpenCitations** their citation data to make them available via **OpenCitations** dumps and services (e.g. REST API)



All members are part of the **OpenCitations** Council and have the right to **elect candidates** to serve on the International Advisory Board for **OpenCitations**

They have a **seat on** the International Advisory Board for **OpenCitations**

Conclusions

You can **make the difference** in the process of reaching a transparent, replicable and verifiable metrics-based research assessment

You can **be part of** the “reform in scholarly communication” (**Cameron, 1997**) by supporting infrastructures aiming at developing a Universal Citation Database

Together, we can improve the way metrics-based research assessment works

Support **OpenCitations**

Support Open Science

Thank you for your attention

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