iSkills: Research Metrics and Citation Analysis Tools. Part 2 – Article metrics.

Rachel Scanlon & Ollie Bridle

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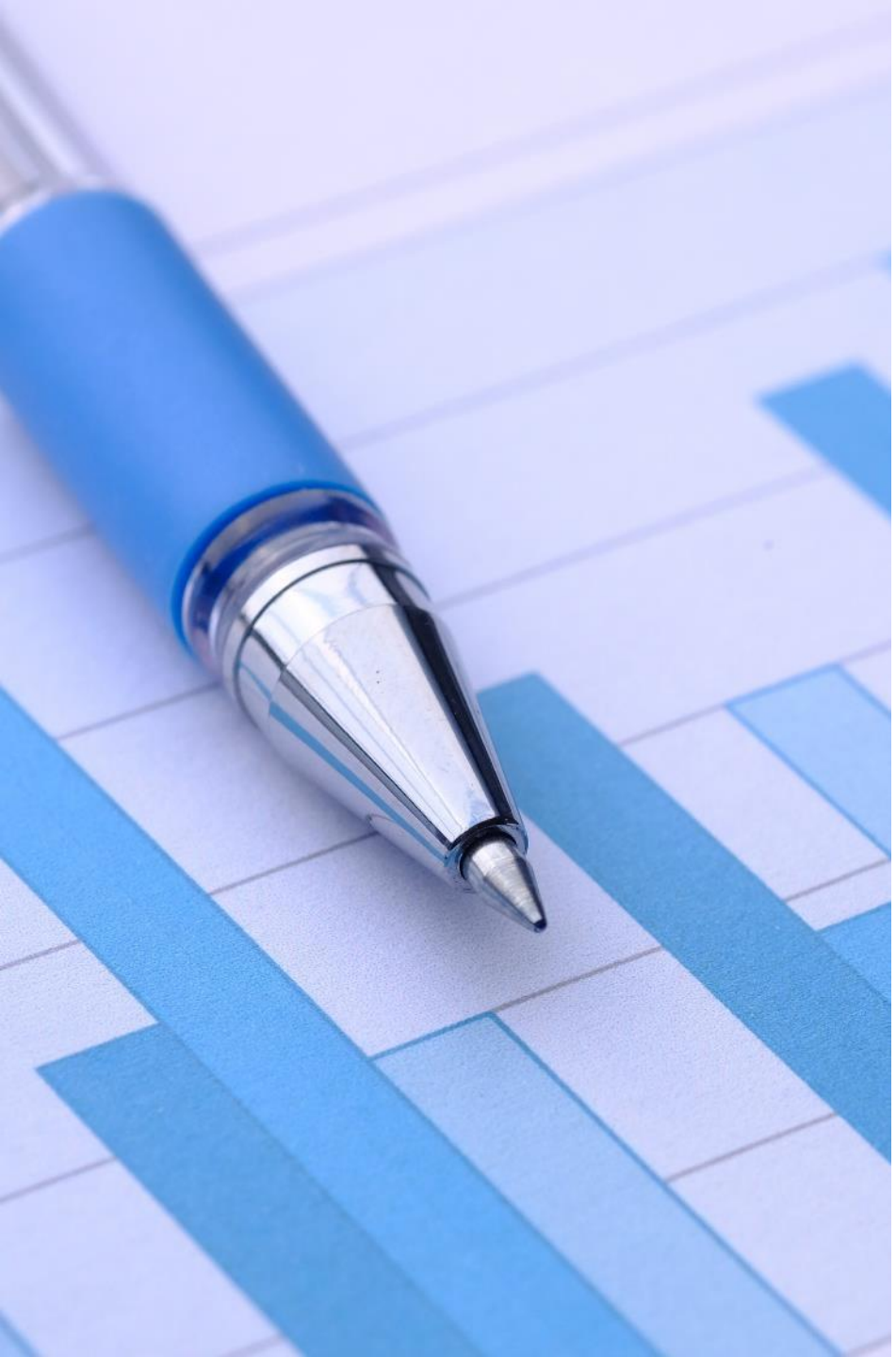
By the end of the session, you will...

Know how to find citation information for articles.

Appreciate the limitations of article metrics and how they can be contextualised.

Understand how altmetrics can be used to help provide a different view of research impact.



What are research metrics?

- **An attempt to quantify the impact of a piece of research.**
- **A means of ranking or comparing research in a quantitative way.**
- ***Not* an assessment of quality.**

What is Research Impact?

Narrowly – measurement of how widely research is read / disseminated in academia.

Broadly – impact of research on society – how it affects policy, changes culture or the environment, develops technology or medicine...

Why Measure Research Impact?

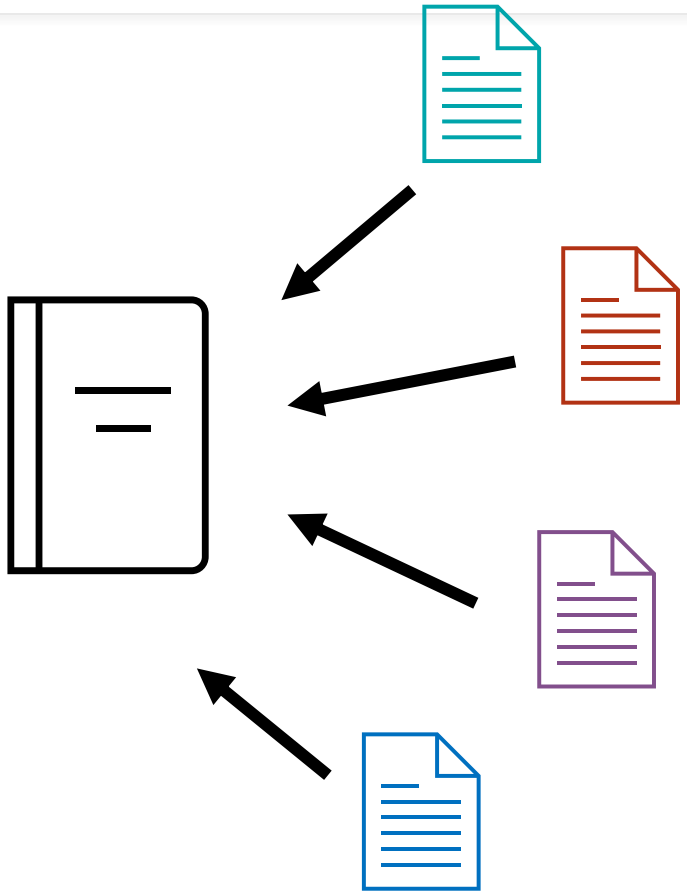
Demonstrate the wider social impact of your research.

Support grant applications and tenure.

Find out who is making use of your research.

Consider outputs beyond academic papers.

What is citation counting?



- Count the citations to a publication.
- In *theory* –
  - highly cited = widely read and influential.

Where does citation data come from?

- Database providers analyse reference lists in papers to record citations to other papers in their databases.
- From this a citation count for each paper is generated.
- The citation count tells you how many other papers have cited the piece of research you are looking at.

This means there are **296 other documents** in the Scopus database that cite this work.

How can article metrics help me?

Identify top or ‘hot’ papers.

Discover where citations are coming from.

Use altmetrics to give a different view on research impact.

Analyse citation patterns over time.

Many things can influence citation-based metrics!

Using metrics responsibly

Metrics do not supplant qualitative expert assessment.

Adding Context

- To understand if a paper is highly cited, it must be viewed in the context of similar papers.
- '*Similar*' may mean -
  - Papers within the same journal.
  - Papers within the same broad field/subject area.
  - Citations received over the same period.
- Some article level metrics try to add this context.

Your Turn! No. 1

- Download the workbook here
- In the workbook try: https://go.glam.ox.ac.uk/Metrics2MT24
- Activity A – Contextualised metrics
- Group 1 – Use Web of Science
- Group 2 – Use Scopus

Answers – Activity A.

- How many citations in Scopus and how many in WoS for the deep learning paper?
  - For WOS - What is that telling you about this paper compared to other similar papers? (in terms of citation numbers)
  - For the Scopus group - What does the FWCI value stand for?
- Were there any contextualising metrics that helped you figure out if this was an unusually highly cited paper?

Field-Weighted Citation Impact (FWCI) from Scopus

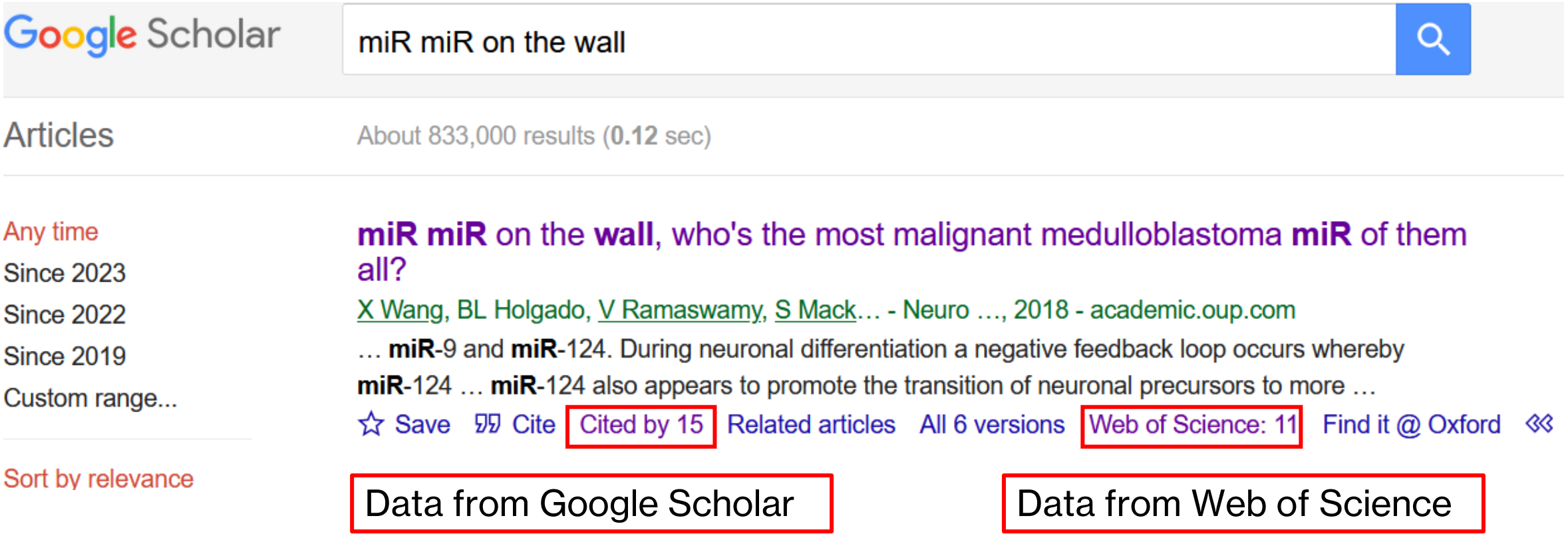
- Is a document cited more than we would expect?
- Considers -
  - When a document is published.
  - Type of document.
  - Subject area covered by the source journal.
- 1 = Expected average.
- > 1 = Cited more than expected.
- < 1 = Cited less than expected.

Highly Cited and Hot Papers (Web of Science)

- **Highly cited papers** – The top 1% of most highly cited papers in a particular field.
- **Hot papers** – Papers which receive a high number of citations over a short period of time (2 months).

Google Scholar

- Google Scholar also provides citation data.
- **Less clear** how Google Scholar generates its citation counts.



Dimensions

Dimensions provides publication citation data and altmetrics.

Look at publications within specific fields.

Get contextualised metrics.

Limited free version available.

Have to sign up for an account to use.

Your Turn! No. 2

- In the workbook try:
- Activity B – Free sources of article citation data.
- Choose to try *either* Dimensions *or* Google Scholar.

Answers – Activity B

- **For Dimensions - note requires sign up**
  - Looking at the top entries for papers in the heritage, archives and museums category, do all these papers seem to clearly relate to this subject area?
  - Was this paper cited more than expected?

- **For Google Scholar -**
  - How many citations does Google Scholar find for the Diabetes UK evidence-based nutrition guidelines?
  - Are all the citations to the published journal version of the paper?

Who is citing this research?

What broad subject areas are citing a piece of research?

Which countries or institutions are heavily citing a piece of research?

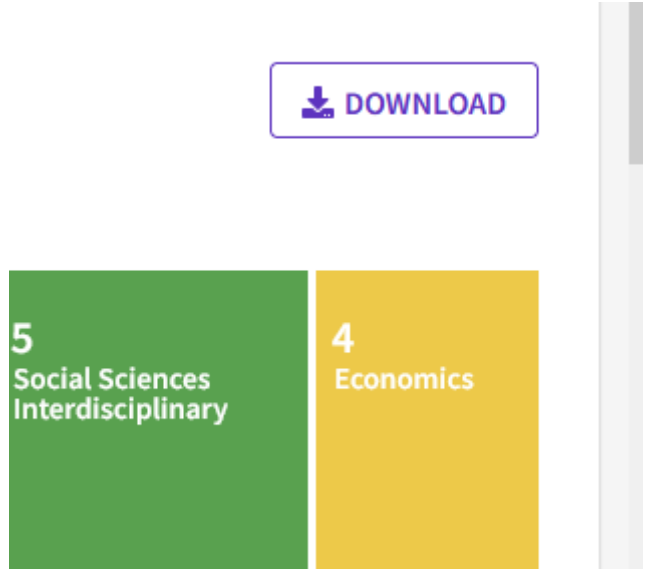
Which authors are frequently citing a piece of research?

Demonstration – Citation Analysis

- How can we find out a bit out who is citing a piece of research.
- Why might this be useful?

Exporting Citation Analysis diagrams

- Click the '**Download**' button above the top right of the visualisation.
- Download the data table using the button at the bottom of the page.
- Data only downloads as a text file!



Citations for Books and Book chapters

- Historically, citation data has been counted from journal articles.
- More recently **book citation indexes** have been created.
- Web of Science has the Book Citation Index.
- The **Cited Reference Search** in WoS makes it easier to find all citations to a document.

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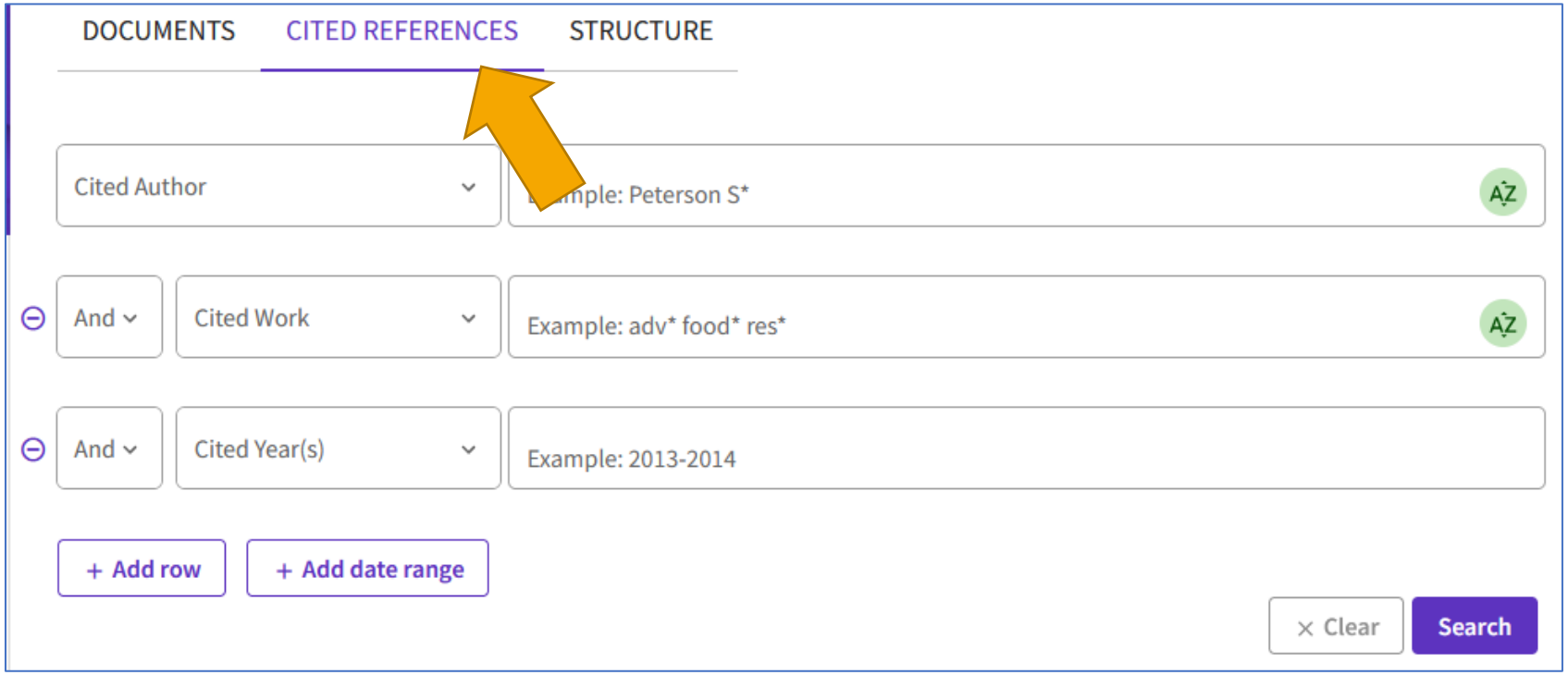
Demo – Cited Reference Searching

- In this demo we show you how to use the Cited Reference search function in Web of Science. This is useful for finding book chapters.



What are Altmetrics for?

- Research reported in the media.
- Research that has created wider public discussion or debate.
- Research that has been used in policy documents.

- Useful when developing case studies or reporting on research impact.

Where can you find altmetrics?

- Scopus provides altmetrics information from Plum Analytics.
- **Dimensions** provides data from Altmetric.
- Freely available information is limited.
- University has access to Altmetric Explorer.
- **No one company covers or monitors all sources.**

Altmetric Explorer

- A new tool for the University.
- Allows in depth exploration of altmetric data.
- Customised to find altmetrics for University of Oxford.
- Too complex to cover here.
- Other altmetric data sources like Dimensions and PlumX are available.

Your Turn! No. 3

- In the workbook try Activity C

On your own, find altmetric data for a topic of your choice.

Answers – Activity C

- Can you access all of the data sources that underpin the altmetric data that Plum Analytics presents?
- What do you think might be some problems or issues with altmetrics?

Problems with Altmetrics

Hard to interpret.

More likely to exist for recent research.

Difficult to differentiate positive/negative discussion.

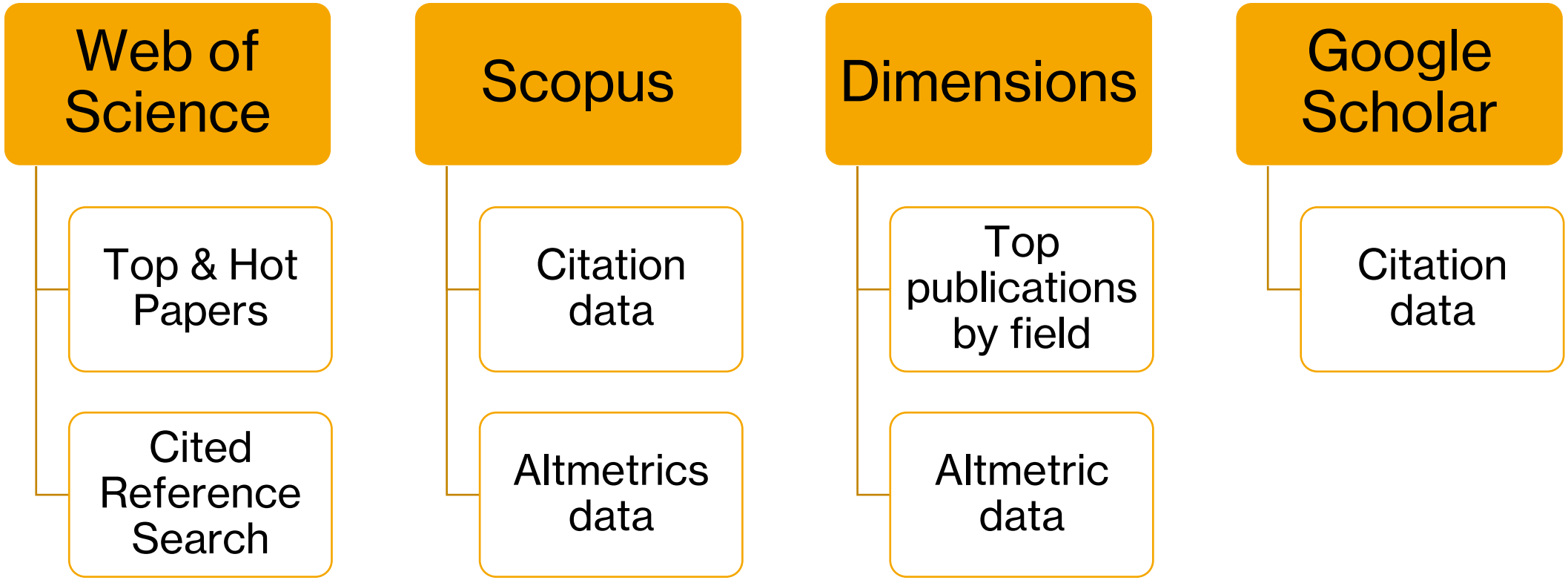
Limited access to source data for altmetrics.

May be influenced by factors that have little to do with the academic/scientific content of a piece of research.

May be influenced by open access publication.

Gaming e.g. use of bots to retweet references to articles.

Tools for Article Metrics



Any Questions?

DORA

- San Francisco Declaration on Research Assessment (DORA).
- Oxford University is a signatory.
- Aims to improve the ways in which the outputs of scholarly research are evaluated.
- Critical of inappropriate use of journal level metrics like JIF and looks at other ways of evaluating research output.
- More information: Read the Declaration | DORA (sfdora.org)
- See also:
  - Leiden manifesto for research metrics

University of Oxford Guidance on using research metrics

- The University has developed principles to promote responsible use of metrics.
- Based on DORA and the Leiden Manifesto.
- View the principles and implementation examples here -
- https://researchsupport.admin.ox.ac.uk/information/principles

Recap of aims...

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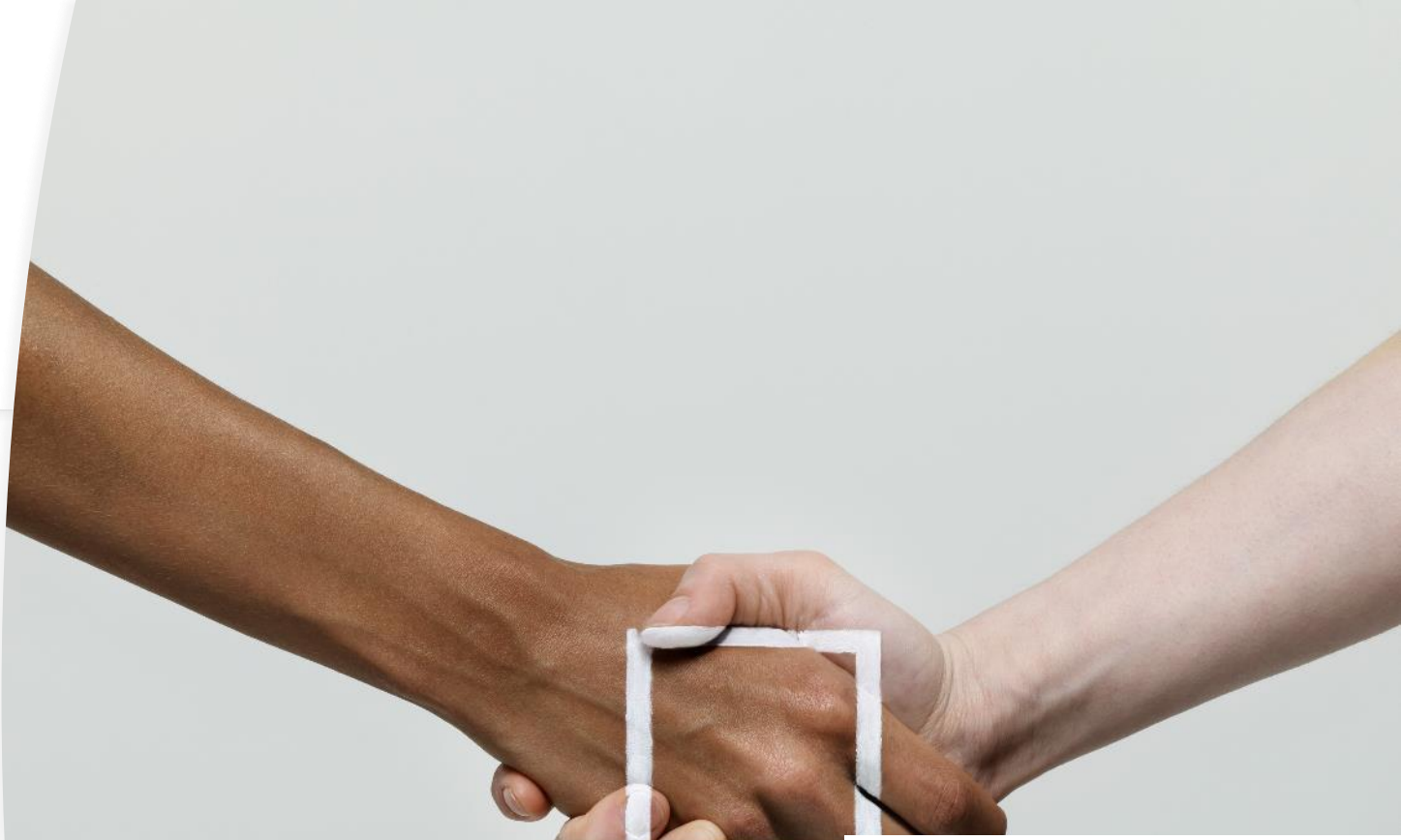
Further help

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- Contact email
- rachel.scanlon@bodleian.ox.ac.uk
- oliver.bridle@bodleian.ox.ac.uk
- @radcliffescilib on Twitter/X