



Research Landscape Analysis (Using Dimensions and Altmetric)

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Altmetric

Part of **DIGITAL**science

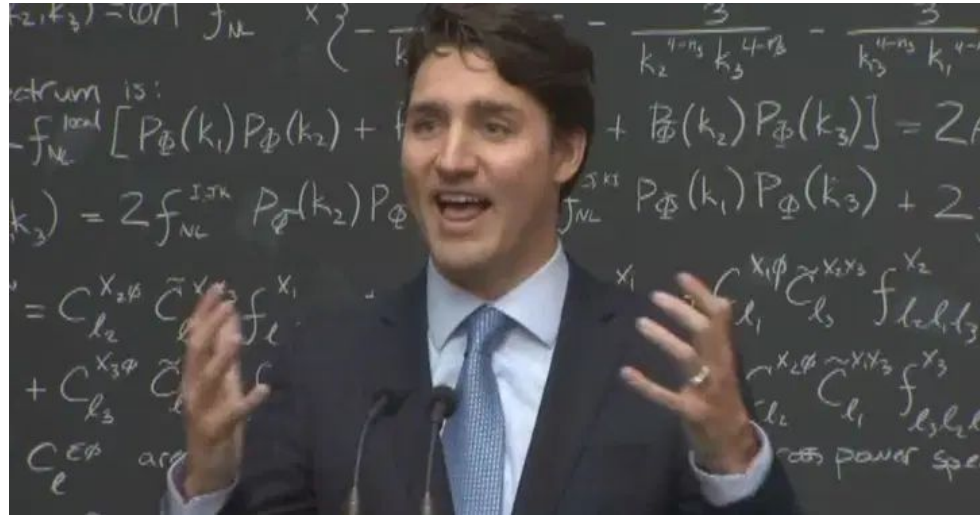
Your presenter...

- Mike Taylor, Head of Metrics Development at Digital Science
- Mostly working on Altmetric and Dimensions.
- Before Digital Science, I worked at a major STEM publisher. Over half that time in publishing, then in R&D, then Metrics and Analytics
- Also a PhD candidate, specialising in altmetrics
- Have been very active in the research community - as part of Orcid, Crossref, NISO. Have made contributions to Onix, CASRAI etc.
- Actively involved in organizing conferences - www.altmetricsconference.com - www.transformingresearch.org - www.latmetrics.com.
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Agenda

- Background to my approach
- Three example topics:
 - Cannabis and medicine - comparing 'therapeutic' cannabis use with studies of addiction / dependency - looking at a search query, how do trends differ, patent activity.
 - Trends in winter tourism.
 - Quantum computing over time.

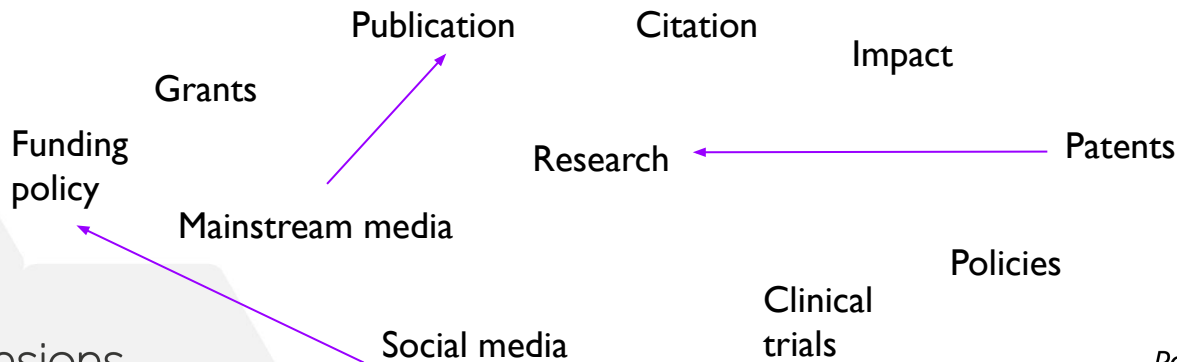


A Quick Background!

- Historically (in a previous job), the approach was to consider research as an essentially linear activity - like a factory. For example:



- The data shows a much more complicated patterns For example:



My approach

- Is highly influenced by Bruno Latours' "Actor Network Theory"
- To actively select topics
- To follow the data
- To selectively read material to understand context and sentiment
- To visualize (where helpful!)
- To use numbers (where helpful!)

Developing a search is a key part of topic analysis

- Librarians understand this skill *very* well!
- Here's my enormous COVID19 query (probably two days' development and testing):
 - "SARS-CoV-2" OR "SARS-2-COV" OR "SARSCoV2" OR "(COVID-19)" OR "(COVID19)" OR COVID19 OR COVID OR "COVID-19"~1 OR "2019 n-COV"~3 OR "nCOV 2019"~3 OR "COVID-2019" OR "COVID 2019" OR "COVID 19" OR "2019-NCOV" OR "2019-novel COV" OR "coronavirus disease 2019"~2 OR "novel coronavirus"~2 OR "novel corona virus"~3 OR "the corona virus" OR "the coronavirus" OR "coronavirus pandemic" OR (武汉 OR Wuhan OR china OR chinese AND (coronavirus OR "corona virus") AND (novel OR 2019 OR 2020 OR outbreak OR epidemic OR "face mask" OR ppe OR pandemic OR disease)) OR (("novel coronavirus" OR "novel corona virus" OR "corona virus disease 2019"~6 OR "coronavirus disease 2019"~6) AND (outbreak OR epidemic OR "face mask" OR ppe OR pandemic OR disease OR protecting OR fauci OR policy) AND (2019 OR 2020)) NOT (porcine OR swine)

- The yellow section is mostly matching for precise expressions, but we use proximity searching to find - for example - '2019 chinese n-COV'. Mostly in biomedical journals.
- The red section are more general phrases that relate to "coronavirus" but have got words near them that imply the search is about the COVID19 virus, rather than the 100s of novel Coronaviridae that exist.
- The blue section shows use of unicode characters and lists some of the features of the COVID19 pandemic. Often in editorials.
- The orange section adds a number of terms that were very low frequency, but worth capturing.
- The buff section eliminates pig coronaviridae, which was producing a handful of false positives.

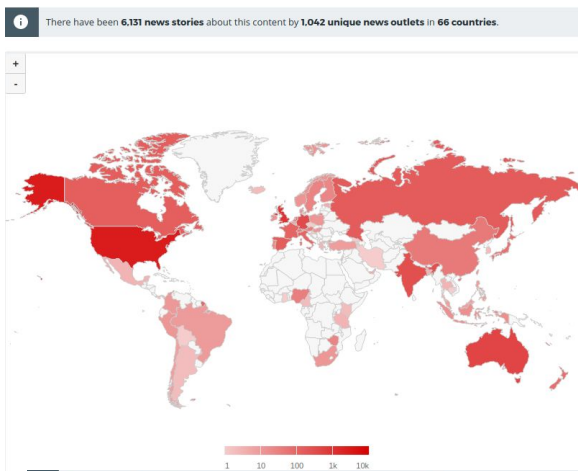
When benchmarking - an *either / or* rule applies

- Either
 - Make like-for-like comparisons
- Or
 - Use normalized metrics (usually for age, subject area and document type), e.g. “Nuclear Physics Book Chapters publishing in 2006”
 - Such as: FCR, FWCI, NCI, RCR, SNIP, SJR
 - Not: H-index, JIF

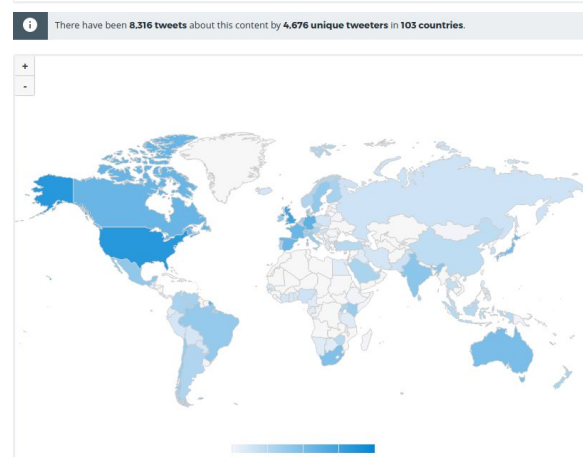
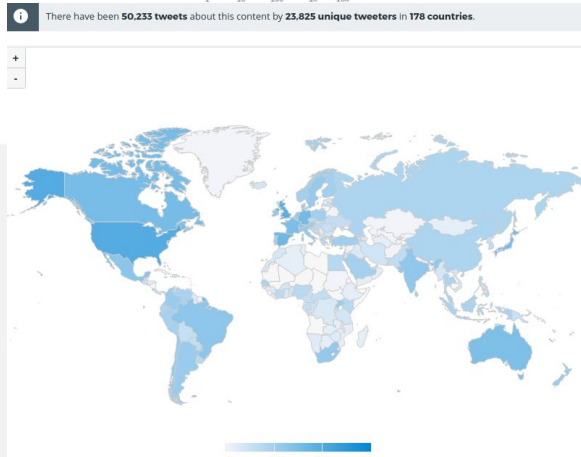
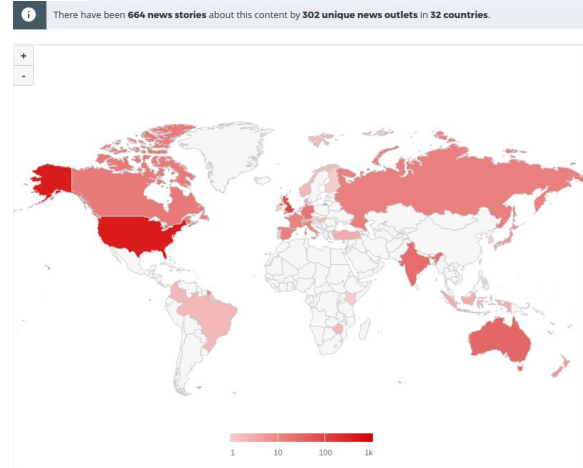
But normalized metrics are nearly all citation based: and you don't get that full picture.

So when doing a landscape analysis, I look at closely related topics.

A very brief example - Chimpanzees versus baboons



- Publication and citation-based metrics suggest very similar fields.
- Baboon research is a slightly larger field (there are more baboon species than chimp).
- The Altmetric data is very different: chimpanzee research is much more widely discussed, shared and mentioned on both mass media and social media (approximately 10x, 6x).



Example 1: Cannabis therapy - benchmarking

Previously blogged about here:

<https://www.altmetric.com/blog/research-narratives-with-dimensions-and-altmetric-therapeutic-cannabis/>

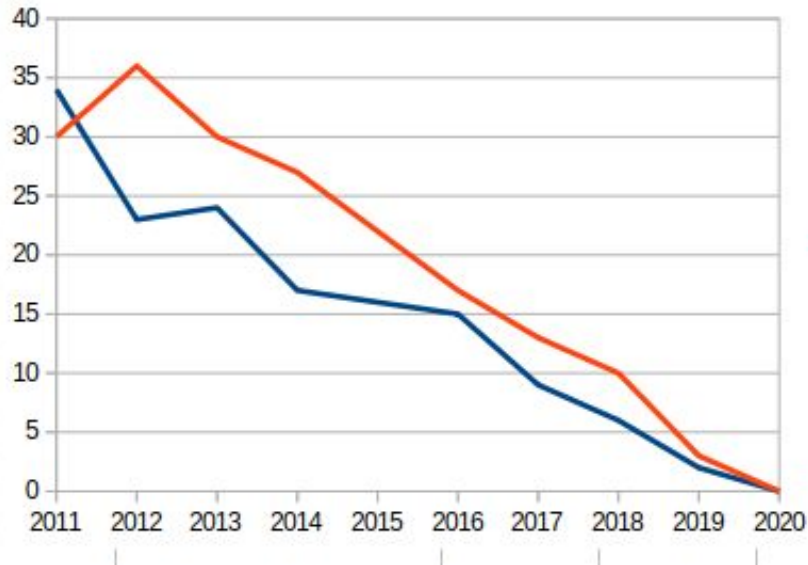
Here, I'm going to contrast research that mentions 'abuse', 'addiction' (etc) versus research that doesn't mention these terms.

(therapeutic OR therapy OR pharmaceutical OR medical) AND (cannabis OR marijuana) **AND** (abuse OR disorder OR dependence OR withdrawal)

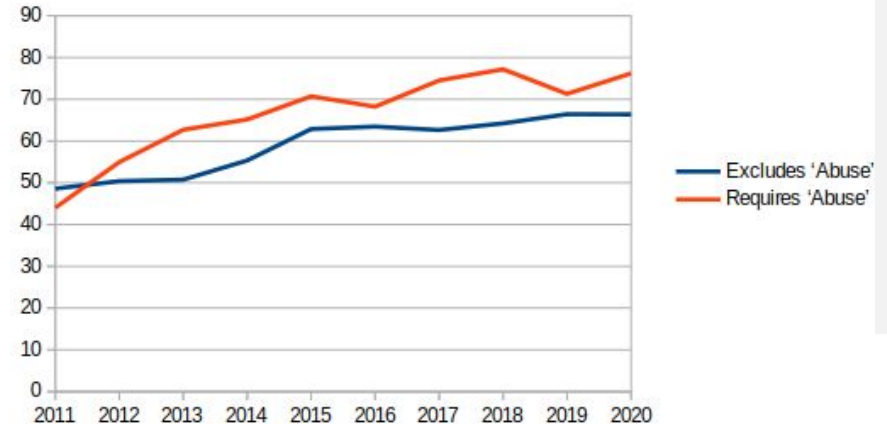
(therapeutic OR therapy OR pharmaceutical OR medical) AND (cannabis OR marijuana) **NOT** (abuse OR disorder OR dependence OR withdrawal)

Example 1: Some similarities

Citation Trends for Medical Cannabis Research

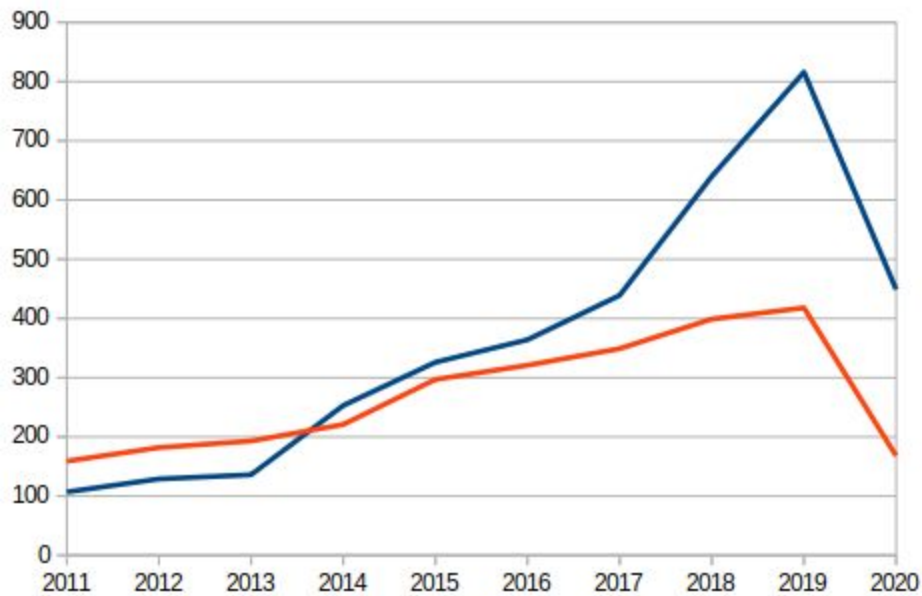


Altmetric Coverage of Medical Cannabis Research

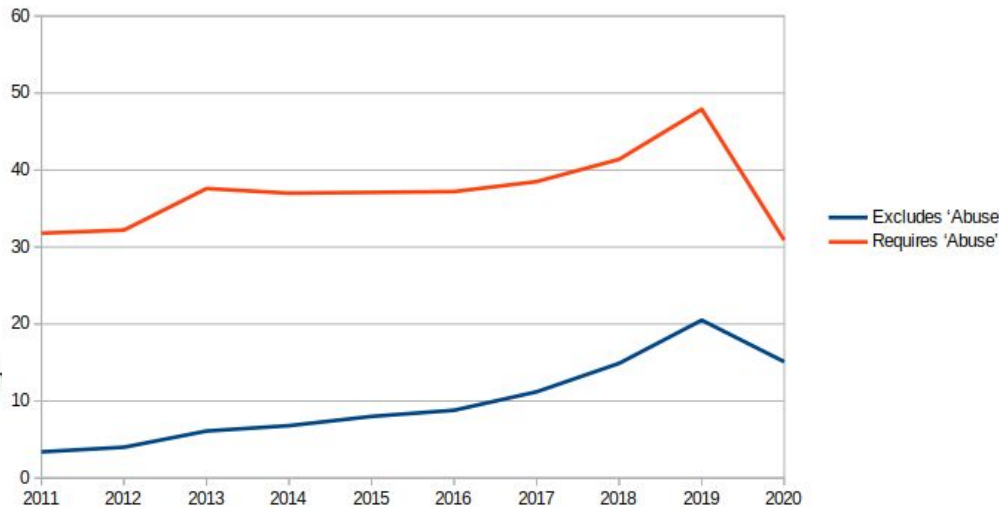


Example 1: Some differences

Publication Trends for Medical Cannabis Research

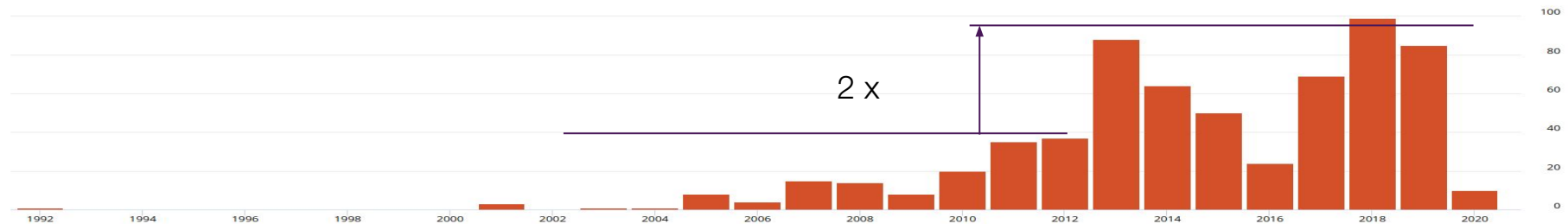


Funding Trends for Medical Cannabis Research

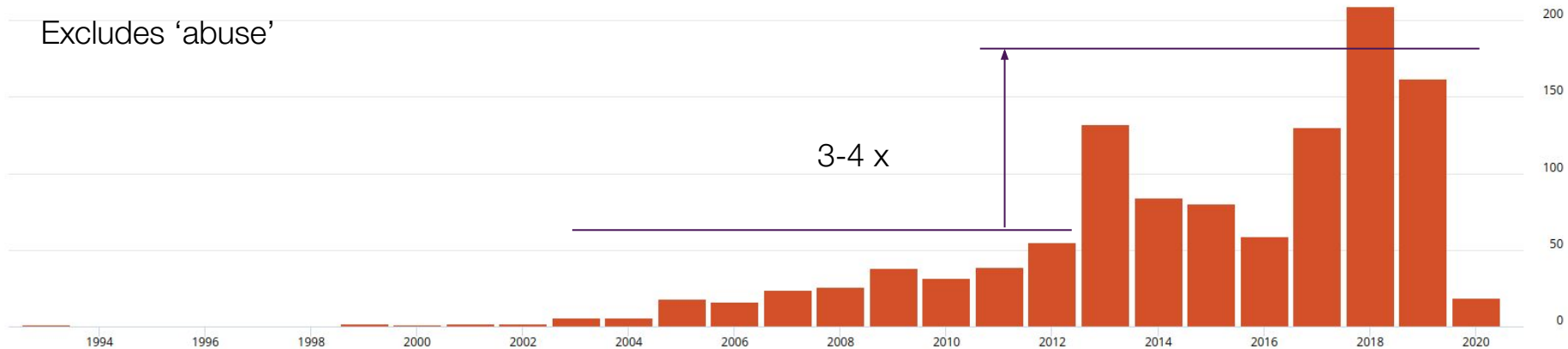


Example 1: The growth of intellectual property

Includes 'abuse'



Excludes 'abuse'



Example 1: An opportunity

Includes 'abuse'
Columbia University (CU)
Yale University
University of California, San Francisco (UCSF)
National Institute on Drug Abuse (NIDA)
UNSW Sydney (UNSW)
King's College London (KCL)
Johns Hopkins University (JHU)
University of Toronto

Excludes 'abuse'
University of Toronto
University of British Columbia (UBC)
University of Colorado Anschutz Medical Campus
University of Washington (UW)
Harvard University
University of Michigan (UM)
University of California Los Angeles (UCLA)
University of California San Francisco (UCSF)

Example 2: Tourism Research - emerging themes

((("artic tourism"~3 OR "adventure tourism"~3 OR "winter tourism"~3 OR "wilderness tourism"~3) OR "ski tourism"~3 OR "skiing tourism"~3)
= 19,000 full text search

((("artic tourism"~3 OR "adventure tourism"~3 OR "winter tourism"~3 OR "wilderness tourism"~3) OR "ski tourism"~3 OR "skiing tourism"~3) AND "climate change"
= 8,000 full text search

((("artic tourism"~3 OR "adventure tourism"~3 OR "winter tourism"~3 OR "wilderness tourism"~3) OR "ski tourism"~3 OR "skiing tourism"~3) NOT "climate change"
= 11,000 full text search

Example 2: Tourism Research - emerging themes

The screenshot displays the Dimensions database interface. The search bar at the top contains the query "((article tourism~3 OR "adventur...". The left sidebar shows various filters, including "GROUPS" and "RESEARCH CATEGORIES". The main panel displays search results for "PUBLICATIONS" (11,486). The results are sorted by relevance and show a list of publications. The first publication is "On the Influence of Seasonal Variation on Sports Tourism" by Wei Wu, Huawei Liu, published in 2015. The second publication is "Exploring the Constraint Profile of Winter Sports Resort Tourist Segments" by Constantinou-Vasilios Piporas, Chris A. Vassiliadis, Victoria Bellou, Andreas Andronikidis, published in 2015. The third publication is "Skiing Tourism" from the 2020 Dictionary of Geotourism. The fourth publication is "Sewage-treatment under substantial load variations in winter tourism areas - a full case study" by S. Winkler, N. Natsché, T. Gamperer, M. Dum, published in 2004. The fifth publication is "SKI TOURISM AND ENVIRONMENTAL PROBLEMS" by Otmar Weiss, Gilbert Norden, Petra Hilscher, Bart Vanreusel, published in 1998. The sixth publication is "Operational and structural A-stage improvements for high-rate carbon removal" by B. Wett, P. Aichinger, M. Hell, M. Andersen, Wellm, Y. Fukuzaki, Y. Cao, G. Tao, J. Jimenez, I. Takacs, C. Bott, S. Murthy.

ANALYTICAL VIEWS

RESEARCH CATEGORIES

Category	Citations
15 Commerce, Management, Tourism and Services	4,649
1506 Tourism	3,774
16 Studies in Human Society	1,936
1505 Marketing	1,301
1504 Commercial Services	1,271

OVERVIEW

Citations: 152 K
Citations (Mean): 13.27

Publications (total)

OPEN ACCESS

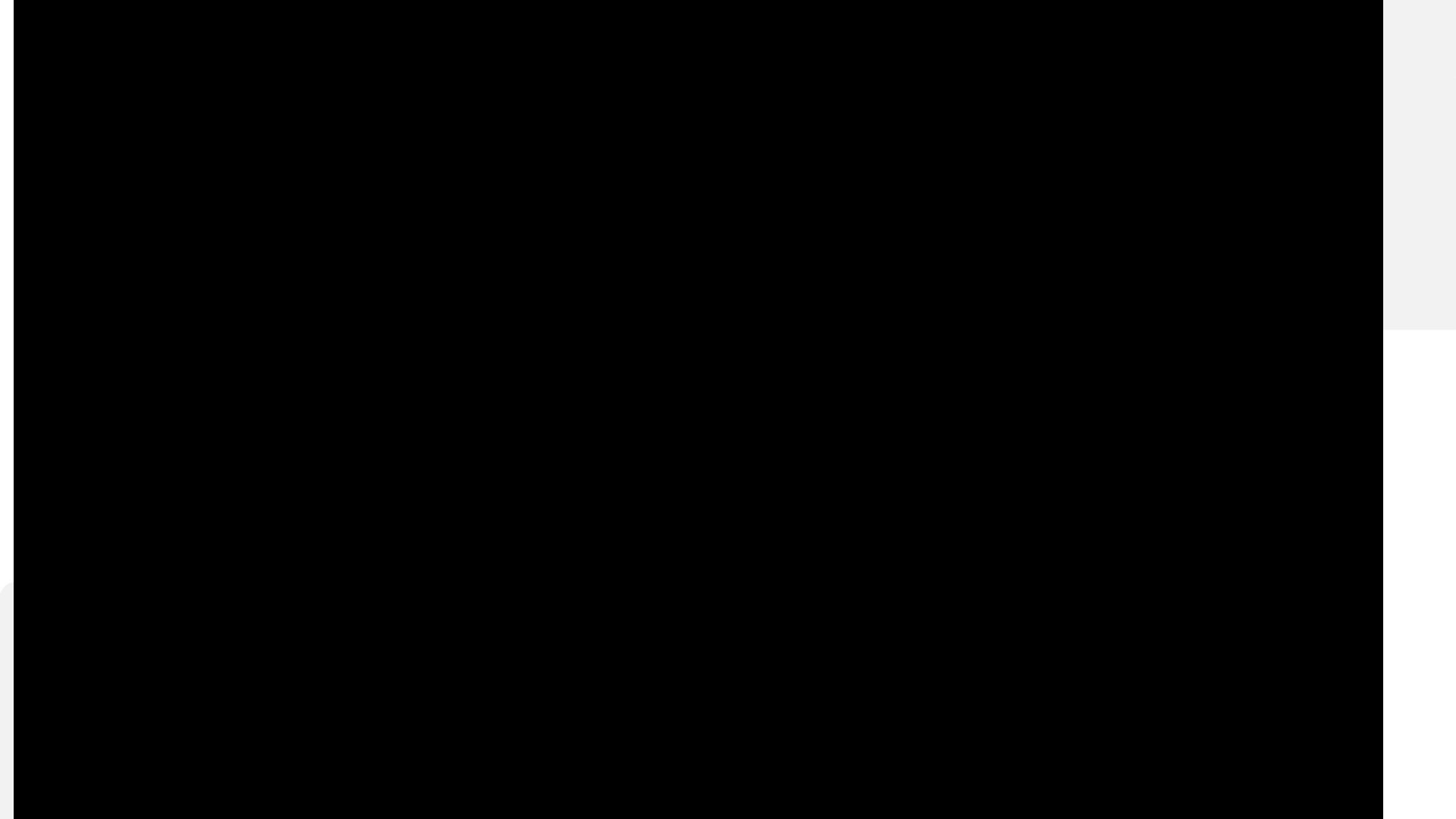
Category	Citations
Closed	8,768
All OA	2,718
Pure Gold	768
Bronze	757
Green, Submitted	522

RESEARCHERS

Researcher	Citations
Ralf Christopher Buckley Griffith University, Australia	67

Getting to know the literature:

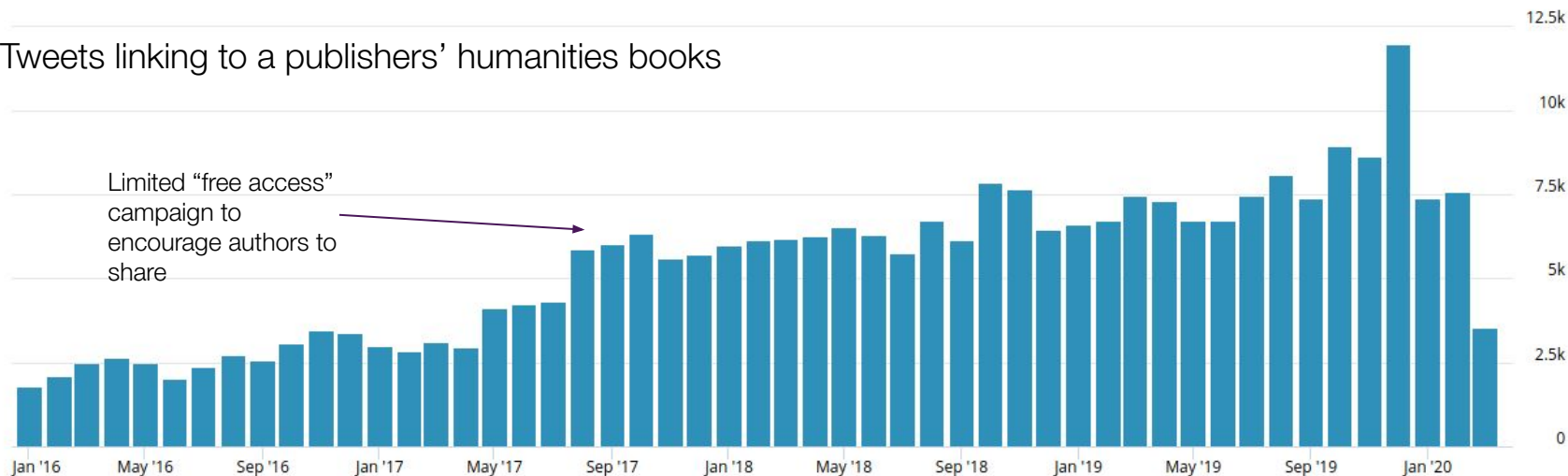
- Water quality ~450
- Snow production ~80
- Infrastructure ~100
- Health and safety ~7000
- Ecology ~2800
- Business ~2000
- Ecotourism ~3000

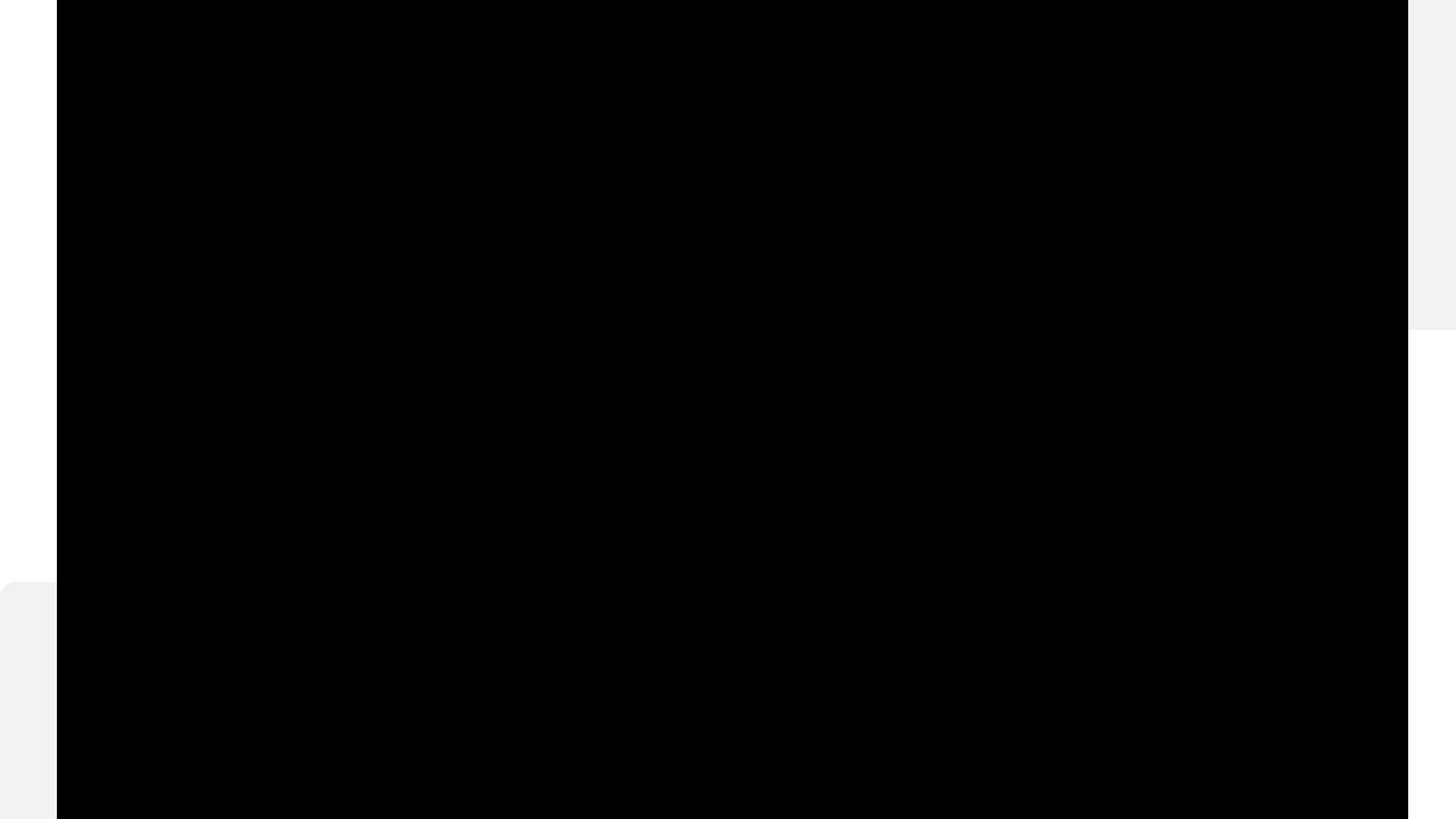


Example 3: Quantum Computing - trends over time

- A (light-hearted) “before and after” analysis.
- But first evidence of a positive “before and after” effect.

Tweets linking to a publishers' humanities books





Conclusions

- Creating a research landscape analysis is as much qualitative as is it quantitative.
- There is a skill to it - very few topics are the same.
- Think about creating an evidence-based narrative, a data-driven story.
- This is not a substitute for being a subject expert, rather it's a way of interrogating the data.
- Much more attuned to identifying an institutions' position within a topic than "Top X universities for medicine".
- If you'd like to work on some practical examples, please contact Lily or myself. Always happy to help!
- (Aussi, je parle un peu de français. À mon avis je pourrais d'animer un webinar).