

Practical Applications of Altmetrics





Practical Applications of Altmetrics

Presentation prepared for the **EUROPEAN SUMMER SCHOOL FOR SCIENTOMETRICS** by Nicolás Robinson-García

doi:10.5281/zenodo.3355276



<http://nrobinsongarcia.com>

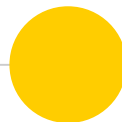


@nrobinsongarcia

altmetrics

altmetrics: a manifesto

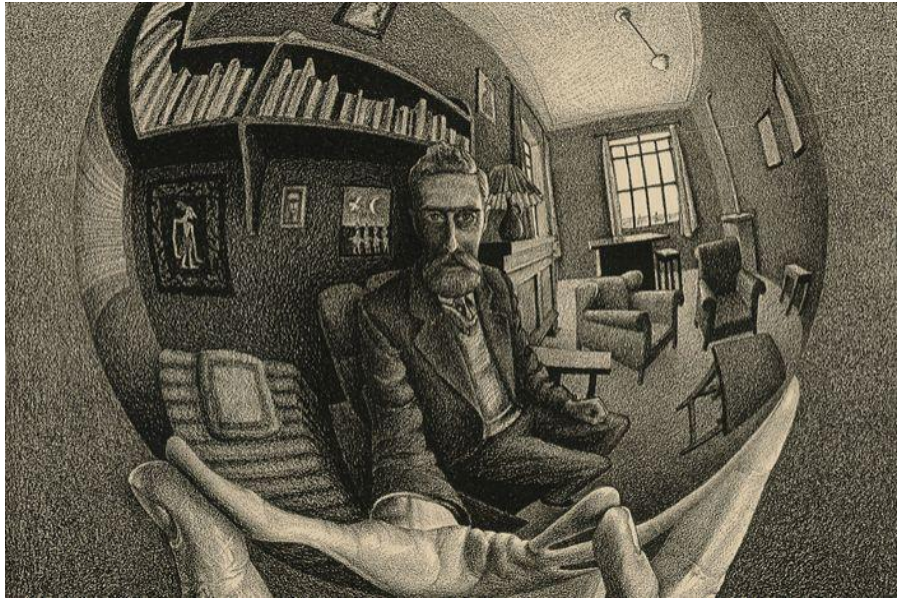
NO ONE CAN READ EVERYTHING. We rely on filters to make sense of the scholarly literature, but the narrow, traditional filters are being swamped. However, the growth of new, online scholarly tools allows us to make new filters; these altmetrics reflect the broad, rapid impact of scholarship in this burgeoning ecosystem. We call for more tools and research based on altmetrics.



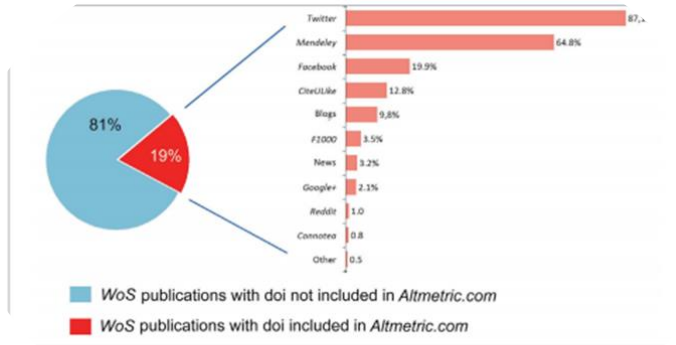
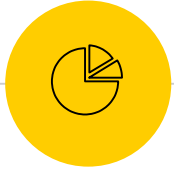
● The promises of altmetrics

- Diversity
Indicators and results
- Speed
Immediate impact
- Openness
Indicators and results
- Beyond scientific impact
Societal impact

Wouters & Costas, 2012



Escher, 1935



7. Coverage of WoS papers in Altmetric.com by social media for the period 2011-2013*

* *Revista de la información*, 2014, julio-agosto, v. 23, n. 4

In the beginning all most studies on altmetrics were about...

- ☉ Data source analyses
- ☉ Description and definition of indicators
- ☉ Lots of promises...

... and many correlations



... and now?

THE FAILURE OF ALTMETRICS

And what information scientists and library
professionals can do about it

CASSIDY R. SUGIMOTO
INDIANA UNIVERSITY



IU Digital Library Brown Bag
Brown Bag Series hash tag: #dlbb
Speaker twitter handle: csugimoto

Conceptual limitations

- Attribution problem
- Passive approach

Technical limitations

- Disparity
- Manipulation
- Volatility



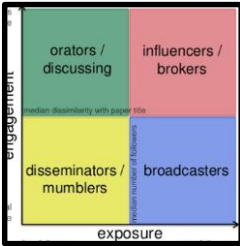
Is it the end of altmetrics?

the potential of social media data for impact assessment lies in that it may help understand the social interactions of researchers, both within and outside the scientific sphere

Robinson-Garcia et al 2018

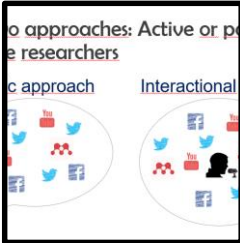
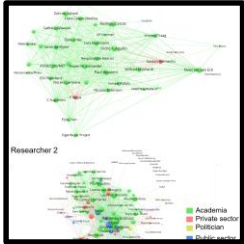
Many data and indicators [...] that make up the altmetric universe are actually data about social media use, reception, and impact

Wouters et al 2018



New approaches

New methods

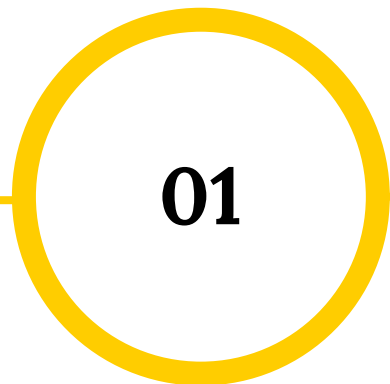


Reinterpreting results

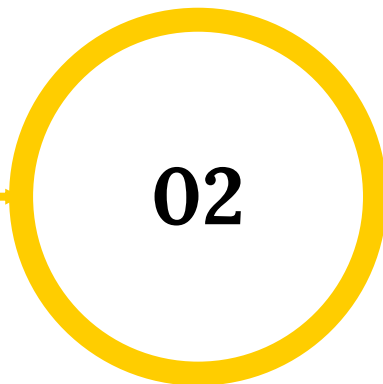




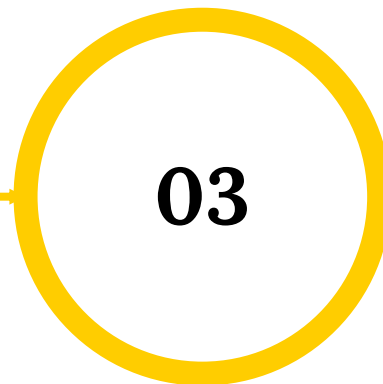
Some considerations



**Data
sources**



Indicators



Design





Which data source?

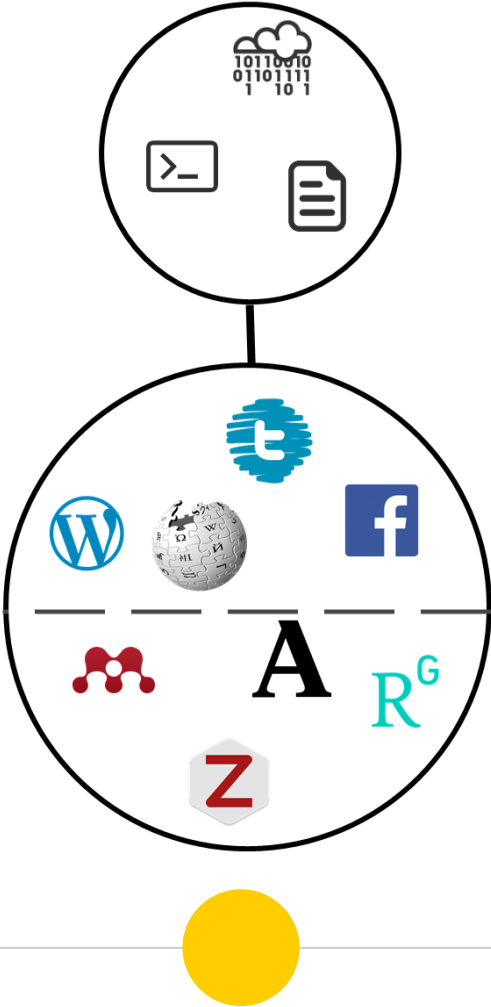
- ⦿ Wide and diverse range of indicators
- ⦿ Each source offers its own set of indicators
- ⦿ Each source shows different results based on the same indicators
- ⦿ These differences are not errors but are derived from the data collection process

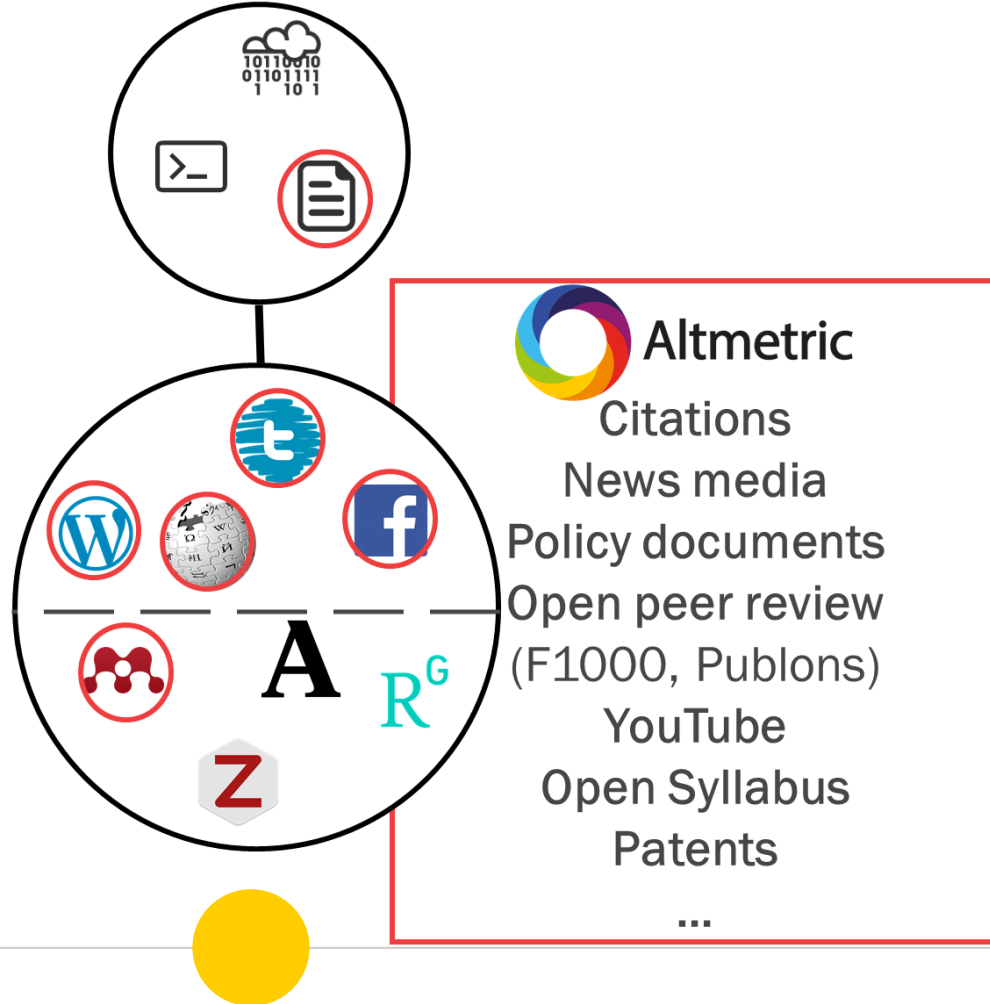
*“Altmetrics is the study and use of
scholarly impact measures based
on activity in online tools and
environments”*

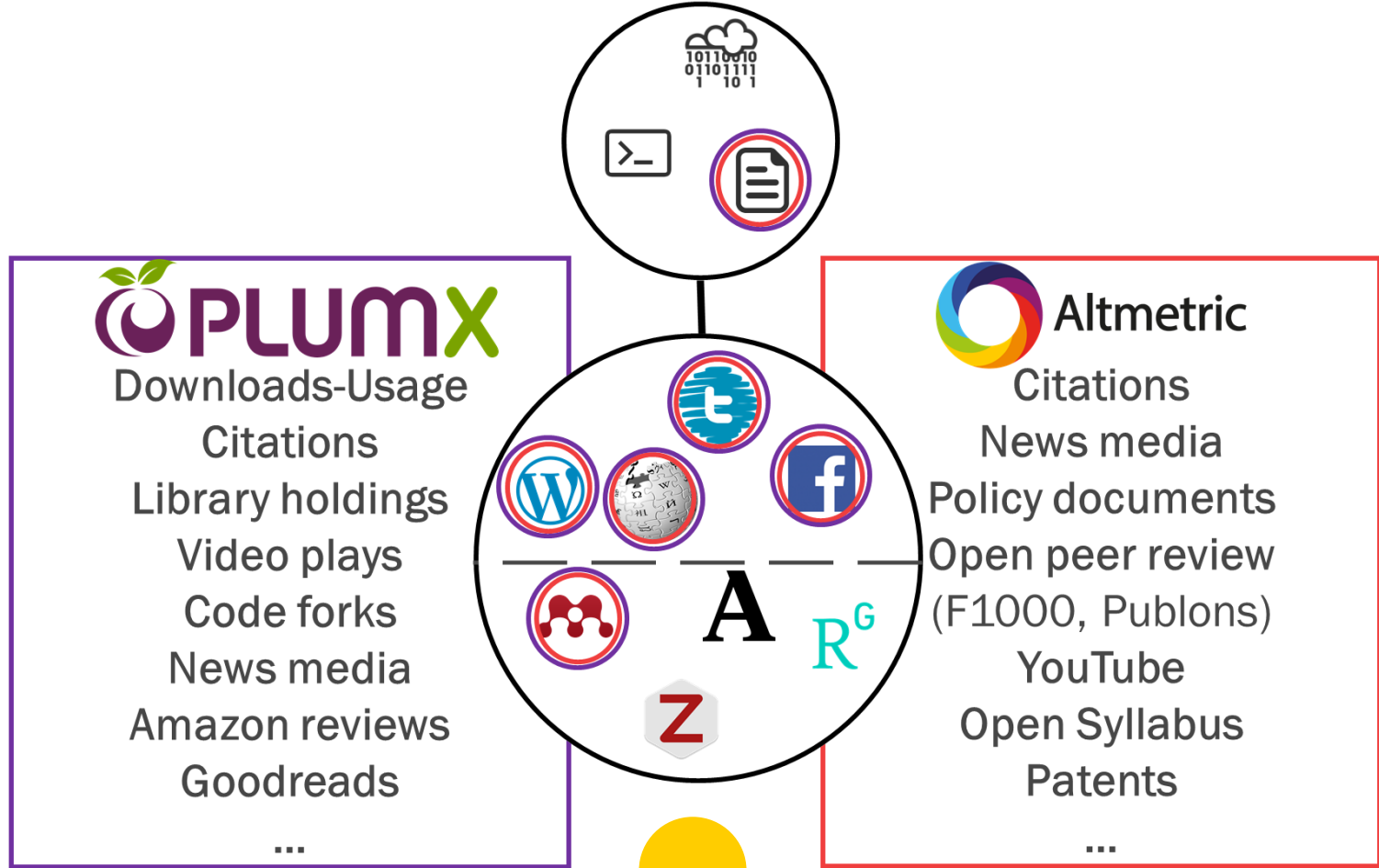
Priem, Groth & Taraborelli, 2012

“









Downloads-Usage

Citations

Library holdings

Video plays

Code forks

News media

Amazon reviews

Goodreads

...



Altmetric

Citations

News media

Policy documents

Open peer review

(F1000, Publons)

YouTube

Open Syllabus

Patents

...



Types of altmetric sources

ALL IN ONE

- Altmetric.com
- PlumX Analytics
- CrossRef EventData
- Lagotto

BY SOURCE

- Mendeley
- Twitter
- Facebook
- ResearchGate



Types of altmetric sources

ALL IN ONE

- Altmetric.com
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- Lagotto

BY SOURCE

- Mendeley
- Twitter
- Facebook
- ResearchGate

Springer Nature
Elsevier
Plos



Sources and indicators

Social networks

- Twitter, Facebook, Google Plus...

Tweets, retweets, likes, users

Social tagging

- Mendeley, Zotero, ReadCube...
readers

Bookmarks, collections,

Scientific blogging

- Publishers, institutional, personal...

Mentions, comments, links

Open content

- PLOS journals, DataCite, Github...

Downloads, comments, views

ALTMETRIC.COM

- Public policy documents
- Blogs
- Mainstream media
- Citations (web of science / scopus)
- Online reference managers (mendeley)
- Research highlights (F1000)
- Peer review platforms (pubpeer, publons)
- Social Media (Facebook public pages, Twitter, Google+, LinkedIn, Sina, Weibo and Pinterest)
- Open Syllabus Project
- Multimedia and others (YouTube, Reddit)



PLUMX



Dimension usage	Dimension mentions	Dimension social media
Abstract views →Dspace <ul style="list-style-type: none">• <i>Source type:</i> repository	Reviews →Amazon <ul style="list-style-type: none">• <i>Source type:</i> electronic bookseller	Tweets →Twitter <ul style="list-style-type: none">• <i>Source type:</i> microblogging network
Downloads →Dspace <ul style="list-style-type: none">• <i>Source type:</i> repository	Reviews →Goodreads; Social <ul style="list-style-type: none">• <i>Source type:</i> cataloging website	Shares, likes and comments →Facebook <ul style="list-style-type: none">• <i>Source type:</i> social platform
Sample downloads →EBSCO <ul style="list-style-type: none">• <i>Source type:</i> electronic provider	News mentions →News <ul style="list-style-type: none">• <i>Source type:</i> online reference	Score →Reddit <ul style="list-style-type: none">• <i>Source type:</i> social platform
Abstract views →EBSCO <ul style="list-style-type: none">• <i>Source type:</i> electronic provider	Links →Wikipedia <ul style="list-style-type: none">• <i>Source type:</i> online reference	Likes →Google+ <ul style="list-style-type: none">• <i>Source type:</i> social platform
Data views →EBSCO <ul style="list-style-type: none">• <i>Source type:</i> electronic provider	Dimension captures	Dimension citations
PDF views →EBSCO <ul style="list-style-type: none">• <i>Source type:</i> electronic provider	Export saves →EBSCO <ul style="list-style-type: none">• <i>Source type:</i> electronic provider	Citation counts →CrossRef <ul style="list-style-type: none">• <i>Source type:</i> database
HTML views →EBSCO <ul style="list-style-type: none">• <i>Source type:</i> electronic provider	Readers →Mendeley <ul style="list-style-type: none">• <i>Source type:</i> reference manager	Citation counts →Scopus <ul style="list-style-type: none">• <i>Source type:</i> database
Link-outs →EBSCO <ul style="list-style-type: none">• <i>Source type:</i> electronic provider	Readers →Goodreads <ul style="list-style-type: none">• <i>Source type:</i> social platform	Citation counts →PubMed <ul style="list-style-type: none">• <i>Source type:</i> database
Holdings →WorldCats <ul style="list-style-type: none">• <i>Source type:</i> library catalog		Citation counts →Others <ul style="list-style-type: none">• <i>Source type:</i> database



LAGOTTO

Viewed

- PubMed Central Usage Stats
- Copernicus

Discussed

- Facebook, Twitter
- Blogs
- Wikipedia
- Reddit
- OpenEdition

Saved

- CiteULike
- Mendeley

Cited

- CrossRef, PubMed
- Scopus
- WoS
- DataCite
- Europe PMC

Recommended

- F1000 Prime

Only PLOS

- Usage
- Figshare usage
- Comments

CROSS REF EVENT DATA

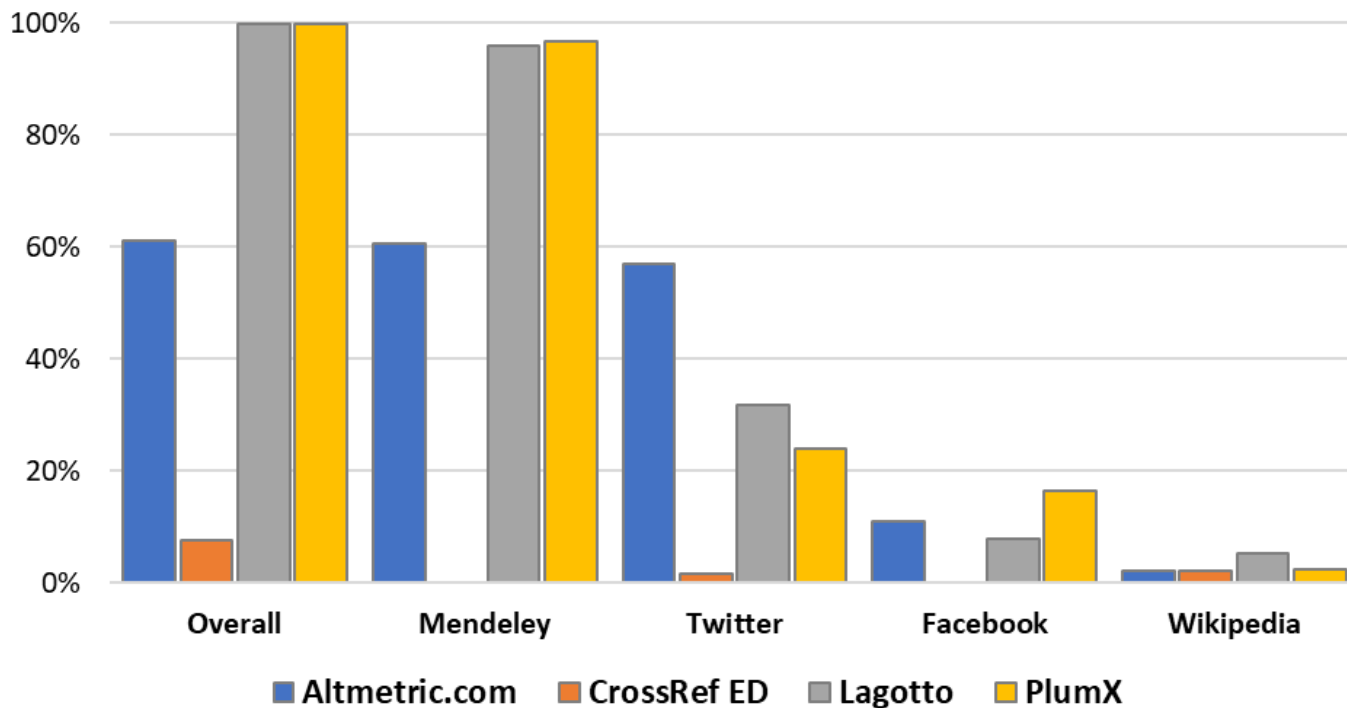
Data source	Event type
Cambia Lens	Citations in Patents
Crossref Metadata	Links to DataCite registered content
DataCite Metadata	Links to Crossref registered content
Hypothes.is	Annotations in Hypothes.is
Newsfeed	Discussed in blogs and media
Reddit	Discussed on Reddit
Reddit Links	Discussed on sites linked to in subreddits
Stack Exchange Network	Discussed on StackExchange sites
Twitter	Mentions in tweets
Wikipedia	References on Wikipedia pages
Wordpress.com	Discussed on Wordpress.com sites





Differences on coverage

Zahedi & Costas, 2018



























Differences on coverage

Zahedi & Costas, 2018

- **Data collection.** Use of different APIs when accessing primary sources.
- **Aggregation and presentation.** Different strategies to identify mentions and document versions (DOI, URL, PMID, etc.)
- **Update.** Different periodicity by source and platform

 **WikiResearch**  @WikiResearch · 21 nov. 2015 
"Are Wikipedia Citations Important Evidence of the Impact of Scholarly Articles and Books?" researchgate.net/profile/Kayvan... (yes, for monographs)
 Traducir del inglés
 1  8  9 

 **Marlène Delhaye** @mdelhaye · 25 nov. 2017 
"Are wikipedia citations important evidence of the impact of scholarly articles and books?" pdfs.semanticscholar.org/c5ca/f01b07044...
 Traducir del inglés
  2  1 

 **openaccess_tp** @openaccess_tp · 17 jun. 2016 
"Are Wikipedia Citations Important Evidence of the Impact of Scholarly Articles and Books?" microblogging.infodocs.eu/?p=4577 via @Inoreader
 Traducir del inglés
  2  

Tweeting different versions of the same paper





Regular article

DataCite as a novel bibliometric source: Coverage, strengths and limitations ☆

Nicolas Robinson-Garcia ^{a, *}, Philippe Mongeon ^b, Wei Jeng ^c, Rodrigo Costas ^{d, e}

[Show more](#)

<https://doi.org/10.1016/j.joi.2017.07.003>

[Get rights and content](#)

Highlights

- DataCite contains 6,348,284 records almost doubling the figures last

Journal of Informetrics, August 2017

SUMMARY

Blogs

Twitter

Facebook

So far, Altmetric has seen 2 posts from 2 blogs.

"DataCite as a Novel Bibliometric Source: Coverage, Strengths and Limitations"

DigitalKoans, 21 Jul 2017

Nicolas Robinson-Garcia et al. have self-archived "DataCite as a Novel Bibliometric Source: Coverage, Strengths and Limitations...."

New Article (Preprint): "Datacite as a Novel Bibliometric Source: Coverage, Strengths and Limitations"

LJ INFOdocket, 20 Jul 2017

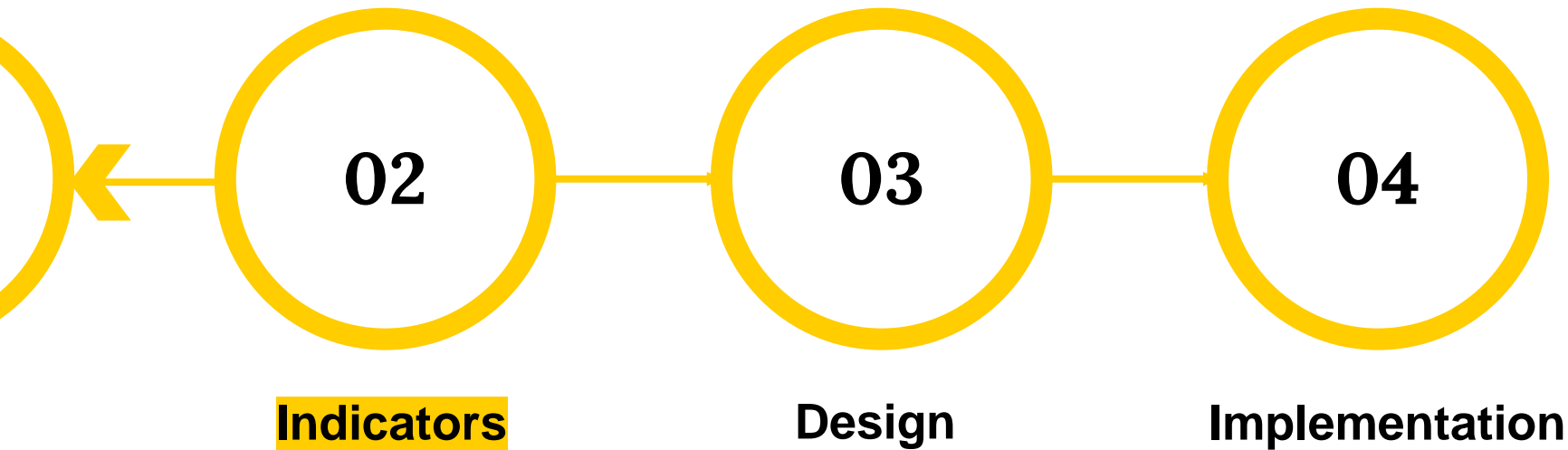
The following article was recently shared on arXiv and has been accepted for publication in the Journal of Informetrics. ...

**Unifying different versions of the same paper in
Altmetric.com**





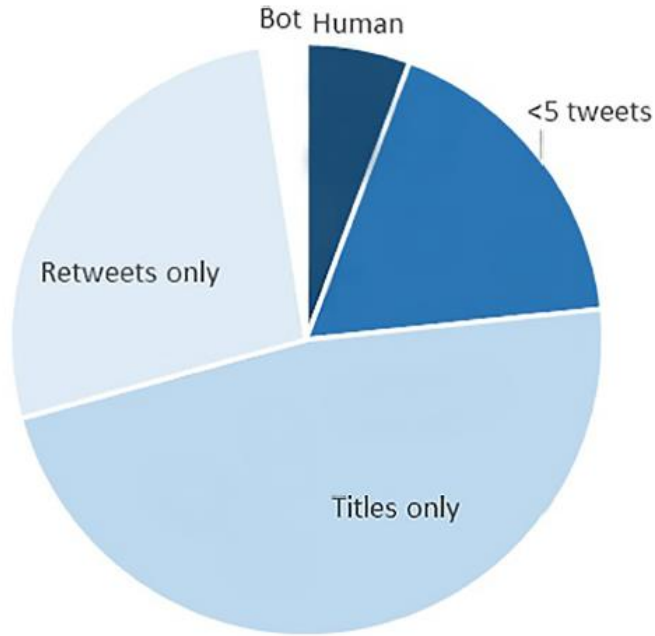
Some considerations





Selecting indicators

- ⦿ What is the goal of the analysis?
- ⦿ Is the indicator a reasonable proxy of what we aim to analyse?
- ⦿ Are our indicators reliable and consistent?
- ⦿ Is our approach appropriate?



Case I. Twitter as an indicator of consumption of scientific literature

- ⦿ There is too much noise. No clear signal of scientific consumption
- ⦿ Indicator and proxy are not aligned

Robinson-Garcia et al., 2017

Case II. Twitter as an indicator of social attention on scientific literature

Library

Search for your next job from **6 8 7**

Science > Animal Behavior > Ethology > Vol 120 Issue 11 > Abstract

ethology
International journal of behavioural biology

Research Paper

Variation in Mate Choice and Female Preference in Proximate but Not Ultimate

Abstract

Although association preferences documented in our study theoretically could be a consequence of either mating or shoaling preferences in the different female groups investigated (should we cite the crappy Gabor paper here?), shoaling preferences are unlikely drivers of the documented patterns both because of evidence from previous research and inconsistencies with *a priori* predictions. Our methods closely followed those of published mate choice experiments in this system (Tobler et al. 2009a,b; Plath et al. 2013), and association time is a standard metric of mate

5191

- Picked up by 8 news outlets
- Blogged by 14
- Tweeted by 6779
- Mentioned by 1 peer review sites
- Mentioned by 4 weibo users
- On 50 Facebook pages
- Mentioned in 15 Google+ posts

Click for more details

SEARCH

In this issue

Advanced

ARTICLE

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- E-mail
- Export

29

Can apparent superluminal neutrino speeds be explained as a quantum weak measurement?

M V Berry¹, N Brunner¹, S Popescu¹ & P Shukla²

¹H H Wills Physics Laboratory, Tyndall Avenue, Bristol BSS 1TL, UK
²Department of Physics, Indian Institute of Technology, Kharagpur, India

Abstract

Probably not.

Keywords: quantum measurement, interference, neutrino oscillations

4574

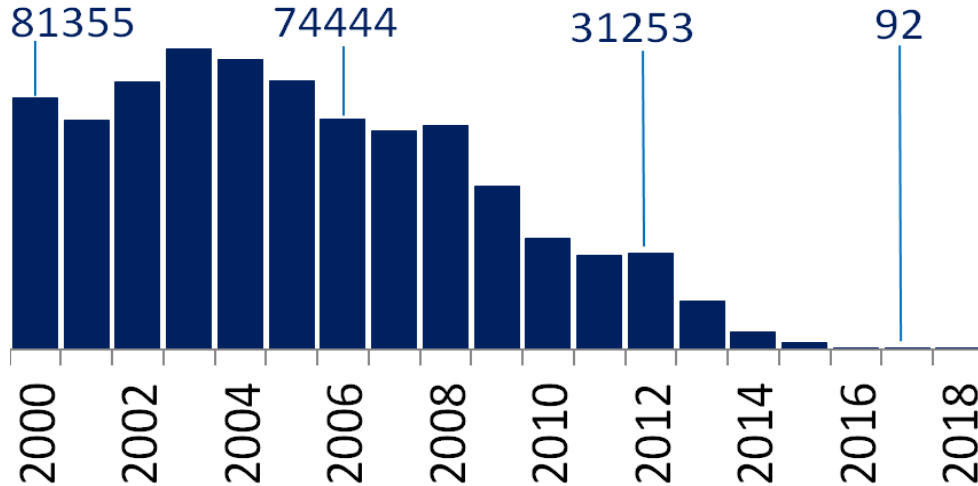
- Picked up by 1 news outlets
- Blogged by 15
- Tweeted by 5637
- On 41 Facebook pages
- Mentioned in 141 Google+ posts
- Reddited by 2
- Mentioned in 1 Wikipedia entries

Close x

🕒 Indicator and proxy are aligned but for the wrong reasons

What do syllabi-based altmetrics actually mean?

Stacy Konkiel, 27th September 2016



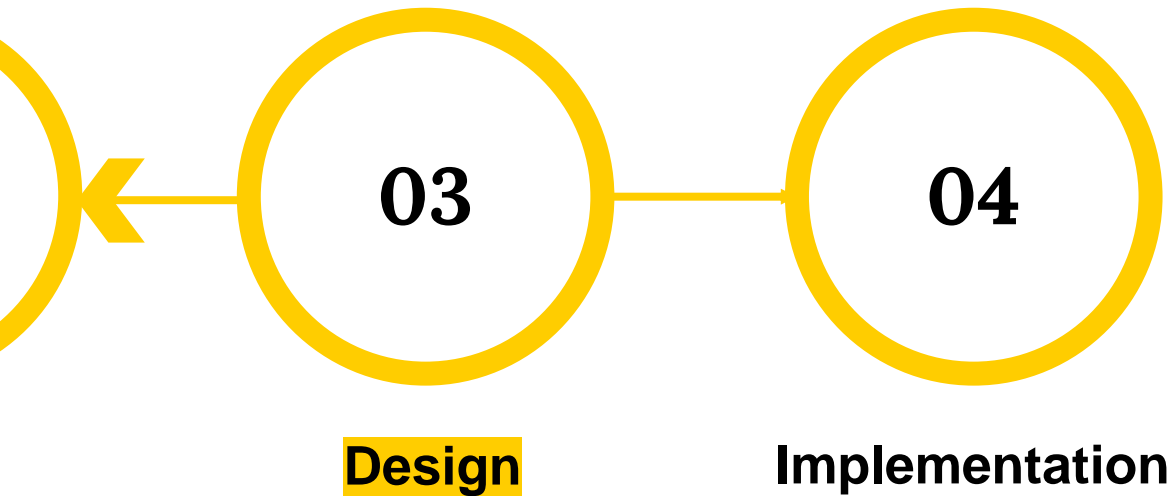
Case III. Syllabi mentions to analyse academic impact

- Indicator and proxy are aligned
- They capture the phenomenon under analysis
- But results are not consistent

Torres-Salinas et al 2018



Some considerations





Monitoring

- ⦿ Exploratory or descriptive
- ⦿ We assume certain levels of uncertainty



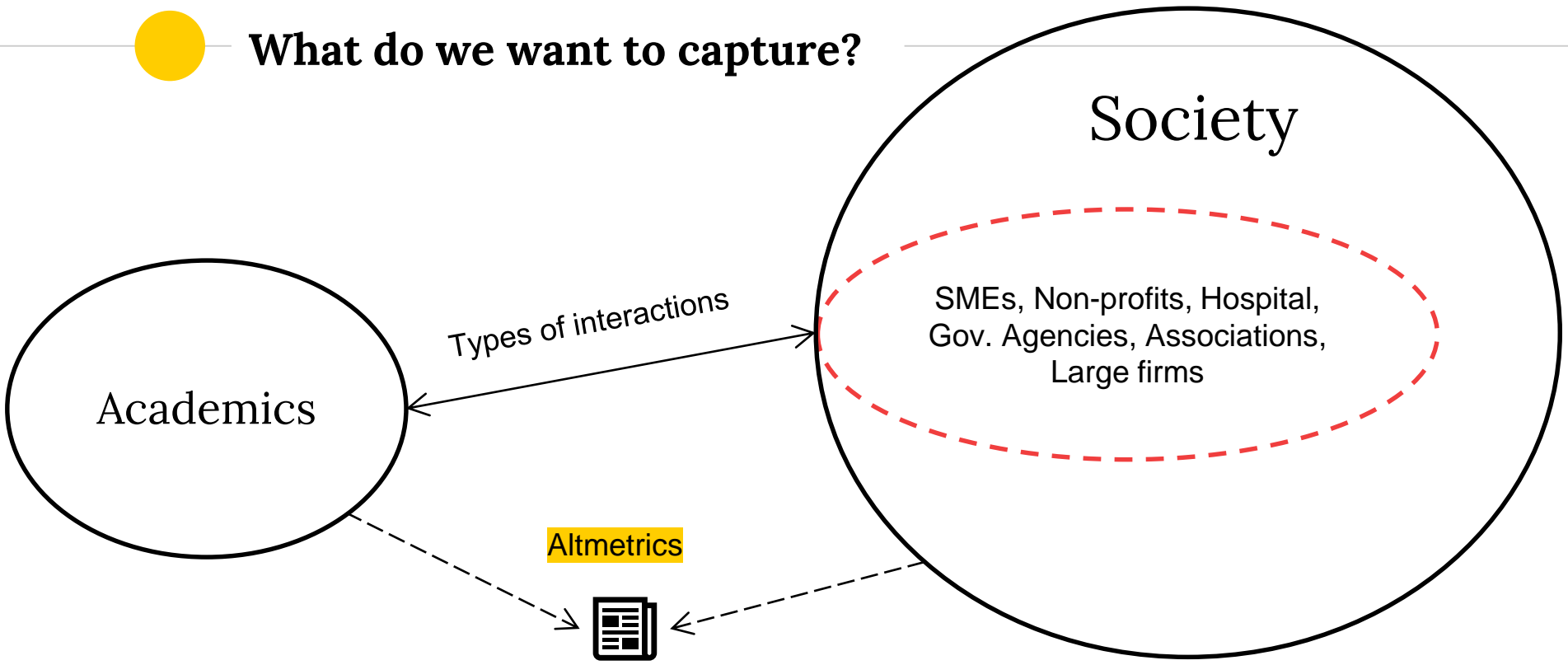
Assessment

- ⦿ Intervention
- ⦿ Altmetrics as complementary
- ⦿ Starting point for qualitative analyses





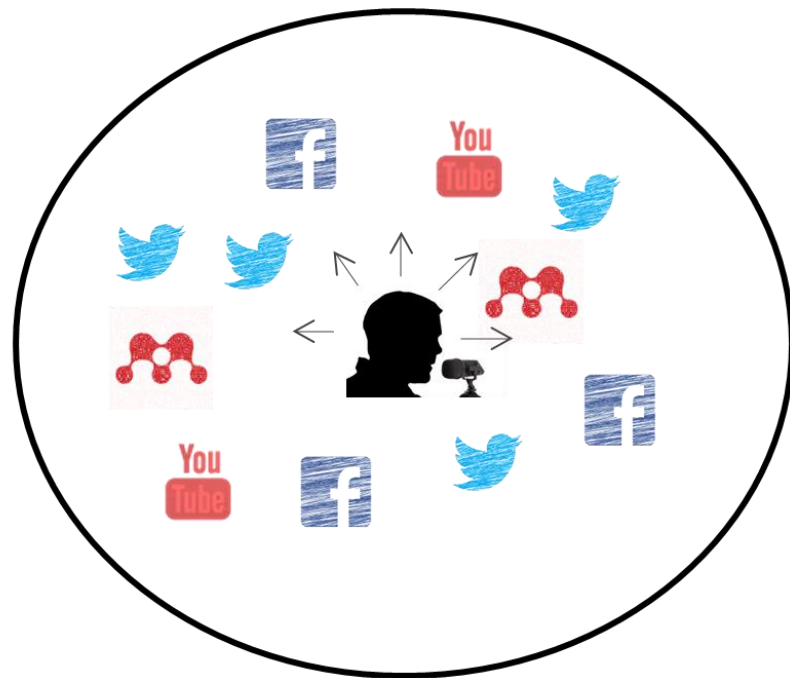
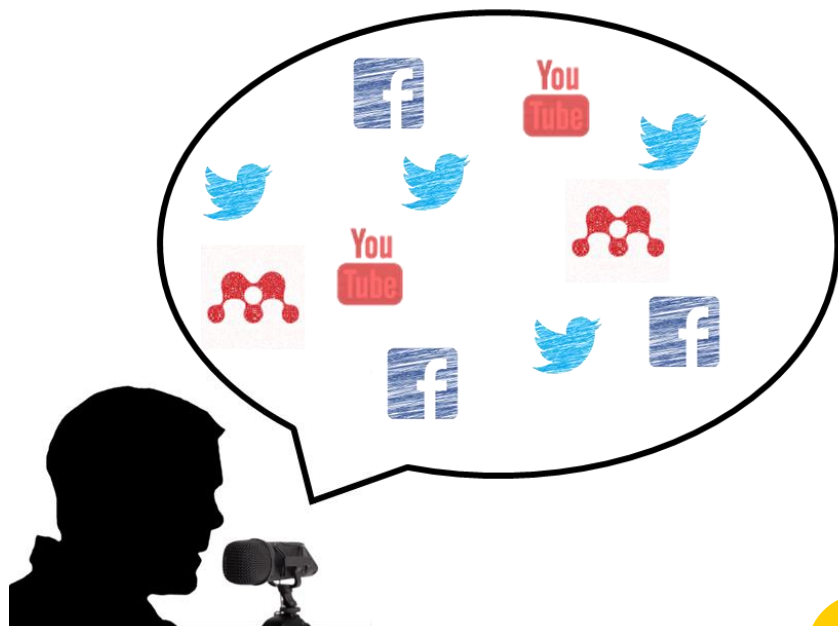
What do we want to capture?



Altmetric approach

vs

Relational approach



● Some considerations

04

Implementation



● Applications of altmetrics

Scientists' social engagement

- Proactive attitude towards social context
- Research linked to societal challenges

Socially relevant topics

- Social attention on scientific topics
- Social controversies on scientific topics

Communities of attention

- Actors consuming scientific literature
- Social perception of science



Altmetrics in practice

Let's check some examples...

Scientists' social engagement

Scientists

- Showcasing achievements

Institutions

- Monitoring social attention to scientific literature
- Profiling scientists

Journals

- Monitoring social attention to scientific literature
- Identifying potential authors

<http://profiles.impactstory.org/>



Nicolas Robinson-Garcia

share

OVERVIEW ACHIEVEMENTS TIMELINE PUBLICATIONS

ACHIEVEMENTS view all

Open Access Top 10%
98% of your research is free to read online. This level of availability puts you in the top 1% of researchers.

Global Reach Top 10%
Your research has been saved and shared in 65 countries. That's high: only 2% of researchers get that much international attention.

Hot Streak Top 10%
People keep talking about your research. Someone has shared your research online every month for the last 3 months. That's a sharing streak matched by only 1% of scholars.

TIMELINE view all

813 Online mentions over 7 years

635 82 43 23 19 7 3 1

PUBLICATIONS view all

Perspectiva y retos de los profesionales de la evaluación científica y la bibliometría
2018
105

Methodological considerations on the use of the normalized impact in the Severo Ochoa and María de Maeztu programmes, Consideraciones metodológicas sobre uso del impacto normalizado en convocatorias Severo Ochoa y María de Maeztu
2018
91

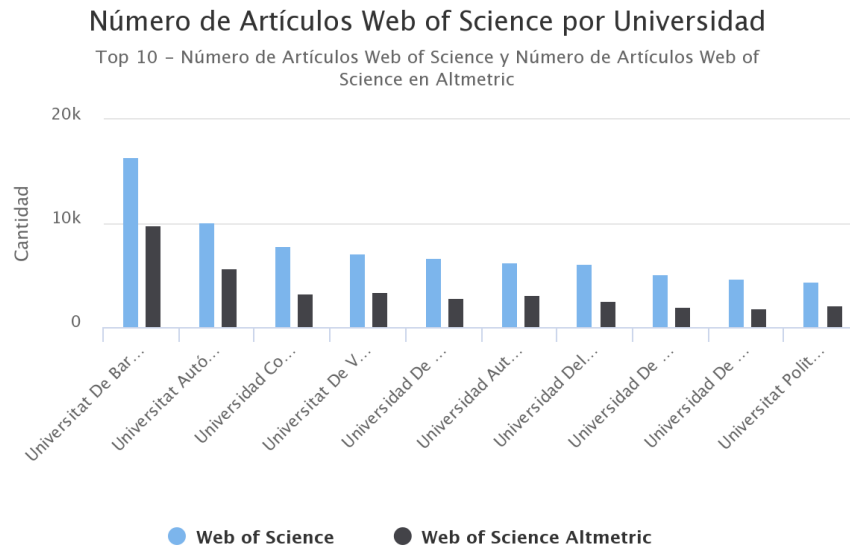
Methodological considerations on the use of the

Setting up your profile



Scientists' social engagement

- 🕒 **Scientists**
 - Showcasing achievements
- 🕒 **Institutions**
 - **Monitoring social attention to scientific literature**
 - Profiling scientists
- 🕒 **Journals**
 - Monitoring social attention to scientific literature
 - Identifying potential authors



Scientists' social engagement

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- **Journals**
 - Monitoring social attention to scientific literature
 - Identifying potential authors



HIGH SOC | HIGH SCI



Her work appears on scientific news (e.g.):

- Mediterranean diet
- Effects of cooking time of tomato sauce on health

Research area (topics)	Nutrition and food science (food technology, viticulture & enology, Mediterranean-style diet)
Publication record	74 pubs – 46% Top 10% Highly cited
Altmetric record	63 pubs in social media – 21 policy briefs 411 news 186 blogs



D'Este et al 2018



Scientists' social engagement

Scientists

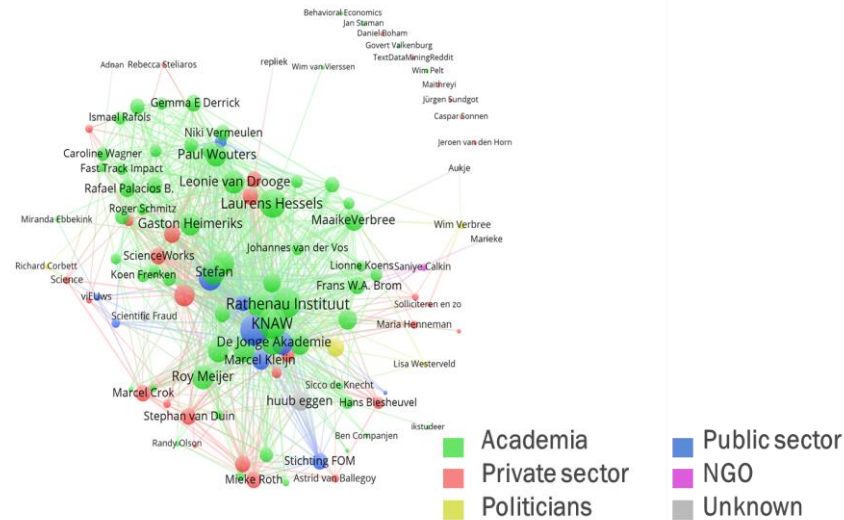
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Institutions

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- Profiling scientists

Journals

- Monitoring social attention to scientific literature
- Identifying potential authors

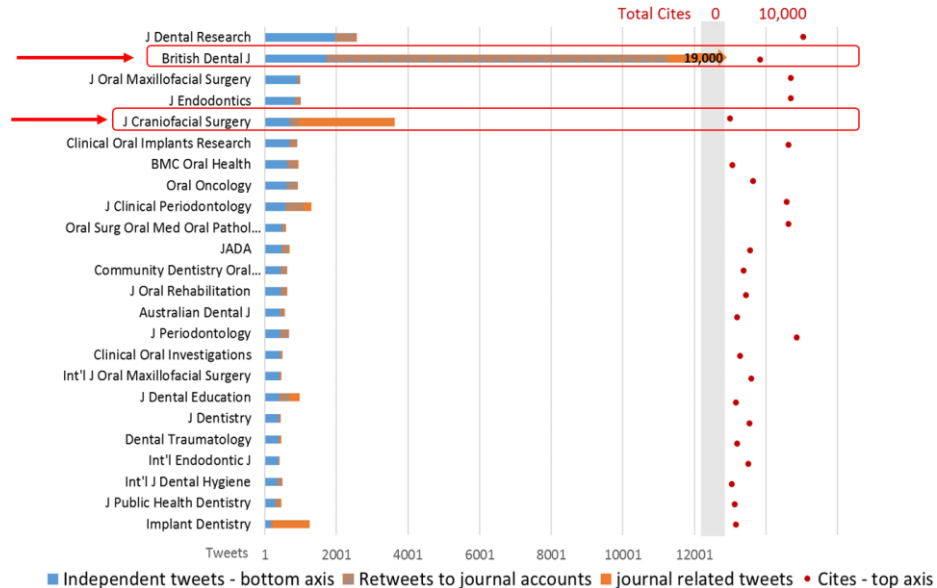


Robinson-Garcia et al 2018



Scientists' social engagement

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Robinson-Garcia et al 2017

● Socially relevant topics

● Scientists

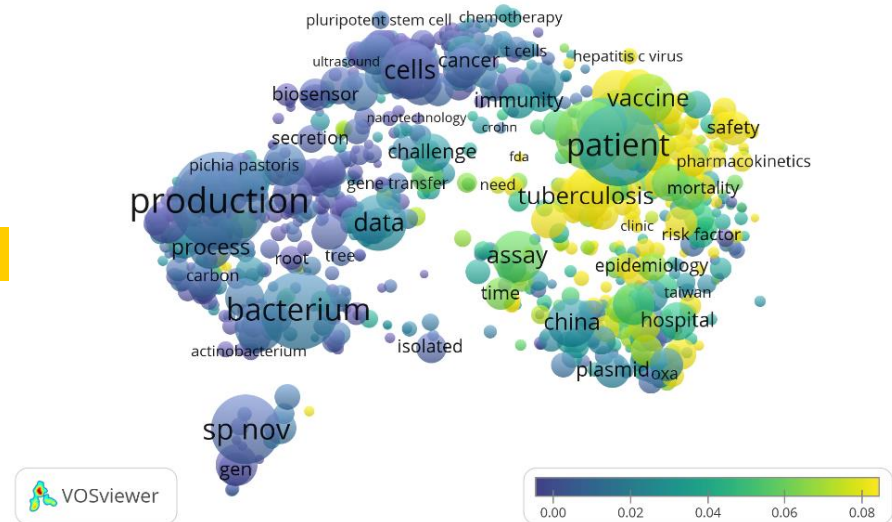
- Selecting research lines

● Institutions

- Identifying social interest on science
- Understanding social reception

● Librarians

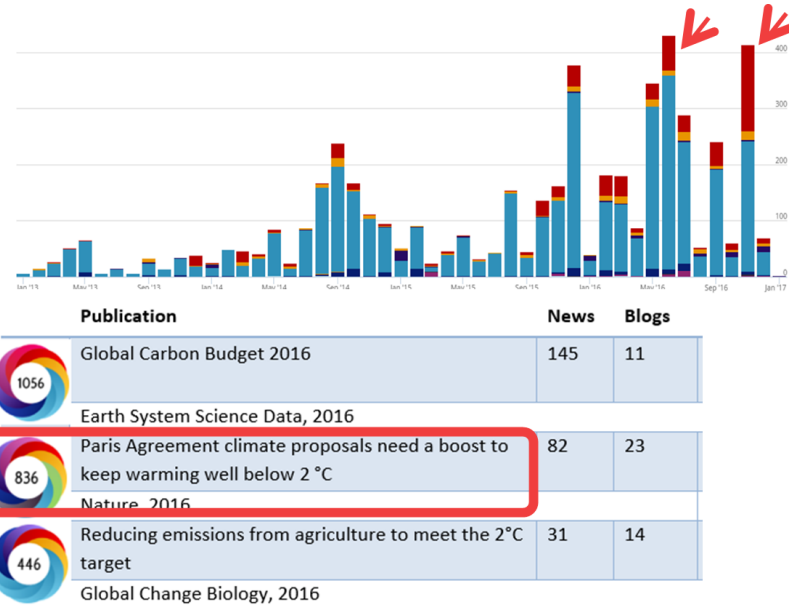
- Collection development



Robinson-Garcia et al 2019

Socially relevant topics

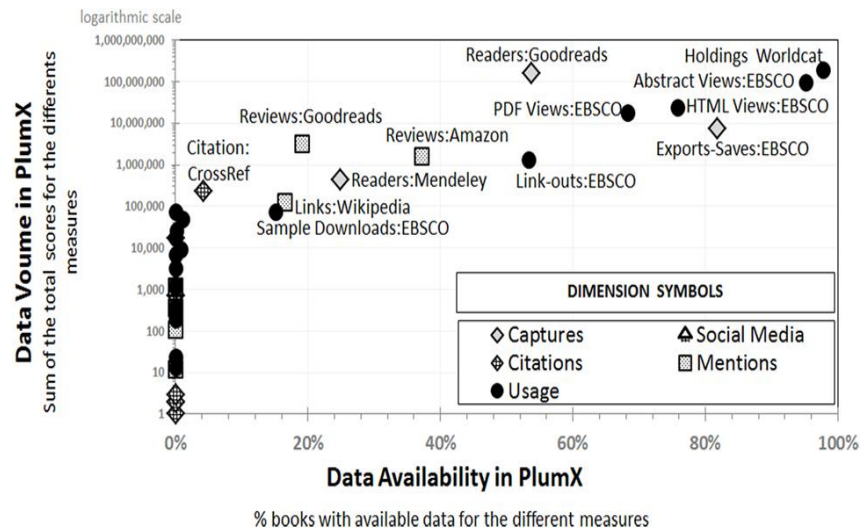
- **Scientists**
 - Selecting research lines
- **Institutions**
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 - **Understanding social reception**
- **Librarians**
 - Collection development



Robinson-Garcia 2017

Socially relevant topics

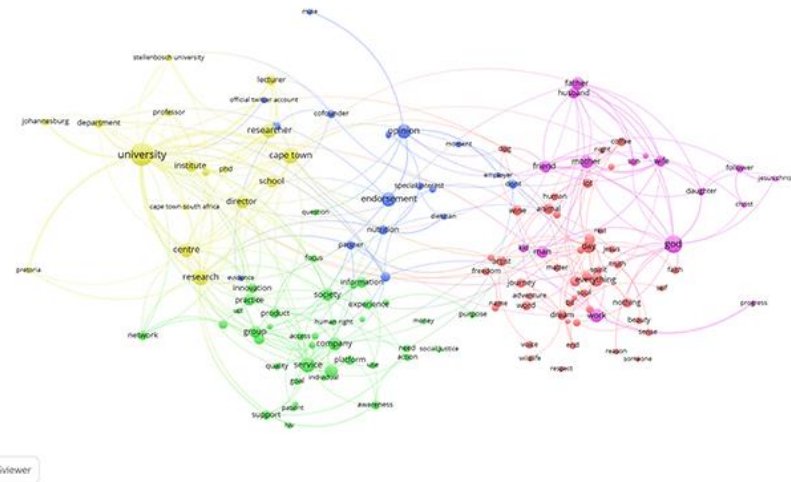
- **Scientists**
 - Selecting research lines
- **Institutions**
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- **Librarians**
 - **Collection development**



Torres-Salinas et al 2017

Communities of attention

- Funding agencies
 - Identifying potentially interested non-academic stakeholders
- Librarians and journals
 - Users' studies
- Scientists
 - Searching for collaboration opportunities
 - Social reception

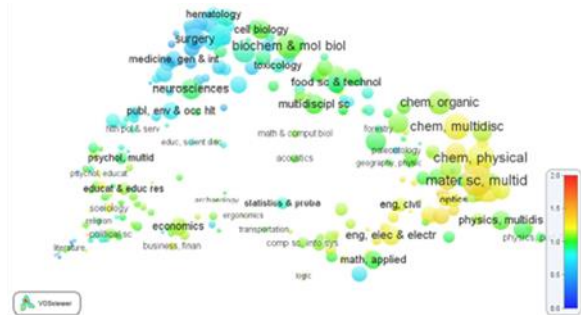


Joubert & Costas 2019

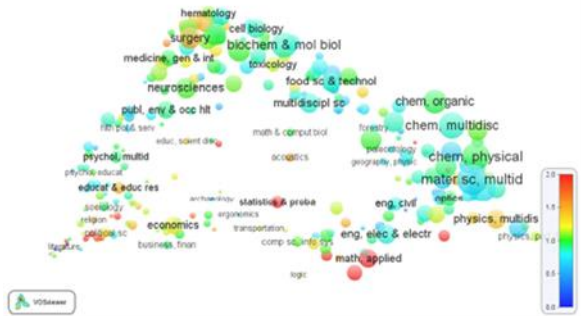
Communities of attention

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 - Social reception

Students



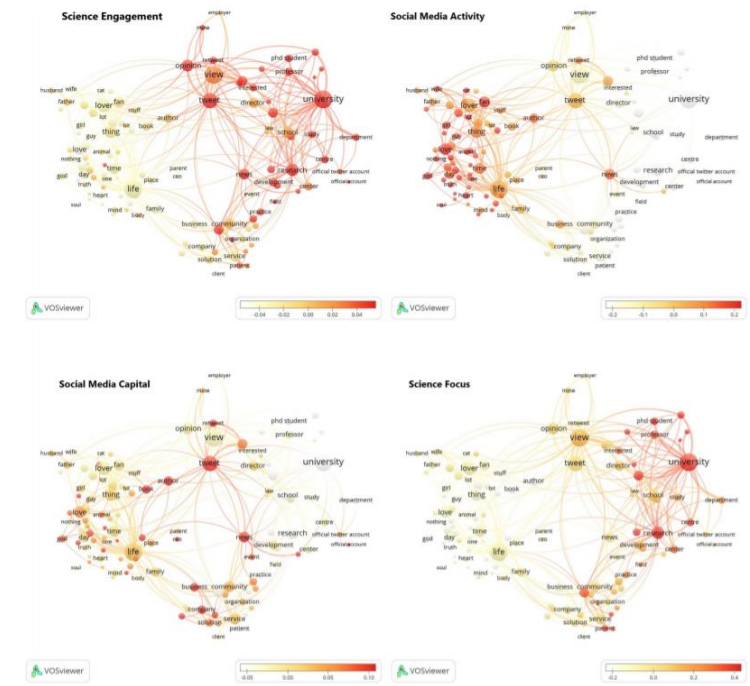
Professors



Zahedi & van Eck, 2014

Communities of attention

- Funding agencies
 - Identifying potentially interested non-academic stakeholders
- Librarians and journals
 - Users' studies
- **Scientists**
 - Searching for collaboration opportunities
 - Social reception



Diaz-Faes et al 2019



Downloading altmetric data

An example with the **Altmetric Explorer**



*Click here to watch
the demo!*



Thanks!

*Practical applications
of **altmetrics***

Nicolas Robinson-Garcia

You can find me at [@nrobinsongarcia](https://twitter.com/nrobinsongarcia) and <http://nrobinsongarcia.com>