What are those donuts?
Intro to Altmetric

Sara Rouhi
Director of Business Development, North America (Washington DC – based)
sara@altmetric.com ; 202 505 0814
Today…

- What are alternative metrics?
- Who are we at Altmetric.com?
- Understanding Altmetric data
- Altmetric in HRA reporter
- Funder use cases
What are alternative metrics versus Altmetric LLP?
Alternative metrics = ANY digital indicator of engagement

Behaviors identified here are specifically captured by Altmetric.com and do not represent the entirety of behaviors alternative metrics can measure.
Altmetric LLP is a UK-based data science company dedicated to tracking and analyzing the online activity around scholarly research outputs.
Global multi-industry customer base
Differences between alt and traditional metrics – complementary

**Traditional journal**
- Slow; take months/years
- Only for journal articles
- Reflect one stakeholder group: Other researchers who read/cite journals articles

**Traditional comms**
- Media monitoring
- Social media monitoring
- Clips services

**Alternative metrics**
- Immediate; take hours/days/weeks
- Apply to scholarly outputs broadly (clinicaltrials.gov, articles, data set, books, websites)
- Reflect diverse stakeholder engagement from policy makers to educators to patients/practitioners
Differences between alt and traditional metrics – *expanded stakeholders*
So what are these donuts in HRA Reporter?
John Templeton Foundation Explorer for Institutions Philosophy/Theology departmental view – using highest scoring article for demo

Data as of 2:30pm 12 March 2017
Known for our Altmetric Attention Score in thousands of academic journals, repositories, and websites.
Publishers make Altmetric data available as an author/reader benefit
What is the donut? What does it indicate?

Mention type | Points
--- | ---
News | 8
Blogs | 5
Twitter | 1
Facebook | 0.25
Sina Weibo | 1
Wikipedia | 3
Policy Documents (per source) | 3
Q&A | 0.25
F1000/Publons/Pubpeer | 1
YouTube | 0.25
Reddit/Pinterest | 0.25
LinkedIn | 0.5

More info at: [www.altmetric.com](http://www.altmetric.com) - About altmetrics — The donut and score; Algorithm and score are publicly available.
The Altmetric Attention Score is generated by a weighted algorithm

<table>
<thead>
<tr>
<th>Volume</th>
<th>Sources</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>The score for an article rises as more people mention it.</td>
<td>Each source category contributes a different base amount to the final score.</td>
<td>Assess the author of each mention in terms of their reach, promiscuity and bias.</td>
</tr>
</tbody>
</table>

More info at: www.altmetric.com - About altmetrics – The donut and score; Algorithm and score are publicly available.
ATTENTION not quality indicator

- Majority of articles receive no attention
- Some fields/subjects are noisier than others
- Most articles with attention score >15
- Attention can be negative (sentiment analysis)
  - Fraud, misconduct, unclear data, issues with methodology, etc
Context is king...what is being said

Is work you’re funding received positively?

http://authorsalliance.org/

MORE INFO

About
Promoting authorship for the public good by supporting those who create to be read, heard, and seen.

Non-Profit Organization


Should we care about Wikipedia?

The power of Wikipedia might be well described by an anecdote which Alex Bateman uses in one of his lectures. The story is about Manny Ramirez, a Major League Baseball player who was banned from 50 games for taking a human chorionic gonadotropin hormone. After this event, over 50,000 people viewed the HCG article on Wikipedia in just two days. Bateman also mentioned in the interview that Wikipedia provides up to 15% of traffic to Rfam database, which is a highly specialized website about RNA families. Thus, some Wikipedia entries may grab enormous public attention, and also generate massive traffic to scientific content.
Context is king...where is it said?

A View from Emerging Technology from the arXiv

Why Wikipedia + Open Access = Revolution

The way scientific information diffuses through the knowledge economy is changing, and the first evidence from Wikipedia shows how.

What outlets matter to your organization? Are you even aware of all of them?

Are you aware of the universe of places your funded work reaches?
Context is king... by whom?

Keet blog // research and teaching, with some relevance for society

On the arxiv paper's data and results

There are several limitations to the paper; some of them discussed by its authors, some are not. The arxiv paper does not distinguish between online freely available scientific literature where only the final typesetted version is behind a paywall and official 'open access'. This is problematic for processing the computer science entries in Wikipedia for trying to validate their hypothesis. In addition, they considered only journals with their open access policy and journal-level analysis factor, and only those 4,721 journals of which a list was taken from between 'green' and not bode well for extraneous representation, ontology, and Ontology, of biological data and -knowledge; more information can be found on my homepage at http://www.meteck.org.
To uncover key stakeholders engaging with their research

- General Public
- Government & Policy Makers
- Investigators
- Research communicators/watchdogs
- Practitioners
- Advocacy/Non-profits
- Tech Transfer
- Interested parties

Altmetric can perform geographic or demographic analysis on request as custom work.
Defining our terms

Sources, mentions, and outputs
Sources: Online platforms where engagement with research occurs

Altmetric tracks 16 distinct platforms

- News media
- Wikipedia
- Q&A sites
- YouTube
- Reddit
- F1000
- Publons
- Pubpeer
- Policy docs
- Academic/field blogs
- Syllabi - NEW
- Facebook
- Twitter
- Google+
- Weibo
- LinkedIn
- Pinterest
Sources: 16 platforms (each with its own donut color) represent thousands of website domains

For a full overview of our sources visit: https://www.altmetric.com/about-our-data/our-sources/
Outputs: Any digital product of the research lifecycle

- Require a persistent ID of some kind
- Outputs Altmetric currently tracks:
  - Clinical trials records from clinicaltrials.gov
  - Articles
  - Books
  - Book Chapters
  - Data sets
  - Press releases
  - Websites

Advanced search filter in Altmetric platform allows you to sort by output type
Mentions:

- Any form of online engagement with a research output
  - Linking, recommending, bookmarking, citing, or otherwise engaging with online
- Below is the mention summary for everything JTF has funded
- Each engagement = 1 mention
Mentions:

• Altmetric tracks the following kinds of online engagement:
  – Discussions on peer review platforms
  – Citations in Wikipedia
  – Commentary on Social Media
  – Coverage in news/blogs
  – Citations in non-journal sources (like policy documents and syllabi)
  – Recommendations in F1000
Altmetric data capture and transparency

Or: We’ve already got metrics for research you’ve funded; even if you don’t know it
3 things required to capture attention

- Research output: Data set, article, clinical trial, etc
- Persistent ID: DOI, PMID, SSRN, NCCT etc
- Engagement in a platform we track (16): News, policy, social media, peer review sites etc
Research output - any part of the research lifecycle

- Data sets: figShare, Dryad, arXiv (anything with a DOI)
- Clinical trial records
- Peer reviewed journal articles
- Books
- Book chapters
- Policy documents, guidelines, white papers
- Presentations, blogs, anything web-native
Persistent IDs

- DOIs
- PubMed IDs
- ISBNs
- Handles
- arXiv IDs
- ADS IDs
- SSRN IDs
- RePEC IDs
- ClinicalTrials.gov records
- URLs

IDs facilitate disambiguation and the collection of accurate data

Altmetric is fully integrated with ORCID but ORCIDs remain the one of the least accurate IDs as they require manual curation by their owners.
These are the 16 source types (channels) Altmetric currently tracks.
How data capture works

- Across thousands of domains
- Looking for links
- Finding ID
- Generating details pages

Altmetrics: Value all research products.
How data capture works: Exceptions

• News
  – Looking for keywords (journal and author name), cross referencing with PubMed or CrossRef

• Policy documents
  – Scraping bibliographies

• Syllabi
  – Feed from Harvard Open Syllabus Project
Altmetric in HRA reporter
Donuts on the publications tab
In HRA reporter

• Donuts show Attention Score and breadth of reach at-a-glance
• Details pages are fully unlocked
• One article at a time
• Does not include “non-article” content
  – Project Vox, Discover the Genome, etc
  – Exception: 3 repositories we do track
    • figShare, Dryad, arXiv, bioarXiv,
Want to see data in aggregate like JTF?

Attention JTF-funded publications published in 2016 received across all the platforms we track.
Analysis across articles by journal?

<table>
<thead>
<tr>
<th>JOURNAL/COLLLECTION</th>
<th>TOTAL MENTIONS</th>
<th>NEWS STORIES</th>
<th>BLOG POSTS</th>
<th>POLICY DOCUMENTS</th>
<th>TWEETS</th>
<th>PEER REVIEWS</th>
<th>WEB POSTS</th>
<th>WEIBO POSTS</th>
<th>FACEBOOK POSTS</th>
<th>WIKIPEDIA CITATIONS</th>
<th>GOOGLE POSTS</th>
<th>LINKEDIN POSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>arXiv</td>
<td>238</td>
<td>11</td>
<td>12</td>
<td>0</td>
<td>211</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Physical Review Letters</td>
<td>289</td>
<td>72</td>
<td>21</td>
<td>0</td>
<td>172</td>
<td>0</td>
<td>8</td>
<td>3</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The Journal of Positive Psychology</td>
<td>43</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>37</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The Astrophysical Journal Letters</td>
<td>26</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>22</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PLoS ONE</td>
<td>89</td>
<td>15</td>
<td>3</td>
<td>0</td>
<td>64</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Proceedings of the National Academy of Sciences of the United States of America</td>
<td>230</td>
<td>45</td>
<td>8</td>
<td>0</td>
<td>170</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Attention JTF-funded publications published in 2016 received across all the platforms we track
Analysis by grant ID, grouping or grantee?

- **Abidin, Zeinal Bagir**
  - 1 research outputs with mentions
  - Affiliations: Life Sciences, IV.A. Humility-in-Theology, Other, 12751

- **Acin, Antonio**
  - 23 research outputs with mentions
  - Affiliations: 43174, IV.A. Humility-in-Theology, Mathematical and Physical Sciences

- **Agrawal, Anurag**
  - 20 research outputs with mentions
  - Affiliations: Life Sciences, How life works, IV.A. Humility-in-Theology, 41855

- **Alexander, Denis**
  - 3 research outputs with mentions
  - Affiliations: Life Sciences, IV.A. Humility-in-Theology, Other, 15389, 11459

- **Amelino-Camelia, Giovanni**
  - 13 research outputs with mentions
  - Affiliations: 25085, IV.A. Humility-in-Theology, Mathematical and Physical Sciences

- **Anginer, Deniz**
  - 2 research outputs with mentions

---

**1. Charter Area**
- 2,264 research outputs with mentions
  - IV.A. Humility-in-Theology
    - 2,222 research outputs with mentions
  - IV.B.1 Individual Freedom and Free Markets
    - 4 research outputs with mentions
  - IV.B.2.b Genetics
    - 18 research outputs with mentions
  - IV.B.4 Character Virtue Development
    - 21 research outputs with mentions

**2. Program Area**
- 2,264 research outputs with mentions

**3. Program Theme**
- 849 research outputs with mentions

**4. Project ID/Sub-Grant ID**
- 2,264 research outputs with mentions
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Journal/Source</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ten Simple (Empirical) Rules for Writing Science</td>
<td></td>
<td>PLoS Computational Biology, April 2015</td>
<td></td>
</tr>
<tr>
<td>When Knowledge Knows No Bounds: Self-Perceived Expertise Predicts Claims of...</td>
<td></td>
<td>Psychological Science (Sage Publications Inc.), July 2015</td>
<td></td>
</tr>
<tr>
<td>The Ancestral Logic of Politics Upper-Body Strength Regulates Men's Assertion...</td>
<td></td>
<td>Psychological Science, General, March 2015</td>
<td></td>
</tr>
<tr>
<td>Searching for explanations: How the Internet inflates estimates of Internal...</td>
<td></td>
<td>Journal of Experimental Psychology, General</td>
<td></td>
</tr>
<tr>
<td>The Content of Our Cooperation, Not the Color of Our Skin: An Alliance...</td>
<td></td>
<td>PLoS ONE, February 2014</td>
<td></td>
</tr>
<tr>
<td>When self-perceptions of expertise increase closed-minded cognition: The...</td>
<td></td>
<td>Journal of Experimental Social Psychology, November 2015</td>
<td></td>
</tr>
<tr>
<td>Free Will and Punishment: A Mechanistic View of Human Nature Reduces...</td>
<td></td>
<td>Psychological Science (Sage Publications Inc.), June 2014</td>
<td></td>
</tr>
<tr>
<td>Choosing experiments to accelerate collective discovery</td>
<td></td>
<td>Proceedings of the National Academy</td>
<td></td>
</tr>
</tbody>
</table>
Use cases by sector

Altmetric solutions
The big question: What are you doing with our money?

The big challenge: Limited resources to answer the big question
Common drivers for new metrics

• Strict charter/mission
• Poor/incomplete grantee reporting
• Explosion of engagement platforms
• Limited FTE
Use cases:
Communication/engagement

• Recognize researchers with good engagement track record
• Help grantees struggling with engagement
• Identify engagement campaign opportunities
Use cases:
Identify thought leaders/potential grantees/potential reviewers

• Ignore Facebook/Twitter at your own risk!
• Data reveals where leaders in the field engage and what they say
• Dissemination trails unearth unknown potential reviewers/grantees
Use cases: We didn’t know what we didn’t know

- Use comprehensive database to ID trends, missed opportunities
- Who are we NOT funding?
- What areas can we STOP funding?
- Just how wide and deep is the reaching of our funded research

I’m the subject of a paper ranked in the top 5%!
Use cases: Custom reporting

- Funders rely on custom reporting/analysis to provide a picture of reach
- Gates Foundation /Open Access mandate
- Custom visualizations/websites/infographics
- https://demos.altmetric.com/
- Publicly communicate the larger story around open access mandates, global reach, “successes”
Government agencies...

• Data Analysis
  – Audience segmentation
  – Networks
  – Policy organization linking
  – Non-article tracking

• Training
  – Defining impact
  – Integrating altmetrics in workflows
  – Identifying key stakeholders
Pharma/corporates...

- Data analysis
  - Competitor drugs
  - Therapeutic areas
  - Tech transfer opps
  - New clinical trial communities
  - Sentiment/context analysis

- Journal analysis
Academics...

- Institutional platform
  - Benchmark against peers
  - Evaluate grant success
  - Tenure/Promo
  - Support story telling
    - Communications and fundraising
Non-profits/museums/research institutes want to...

- Commercial API integration
  - Integration into online publishing platforms
  - Institutional repositories
- Non-article tracking
  - Websites
  - Standards
  - Reports
  - Policy recommendations
Services and Data in summary

- Explorer for Institutions Platform
- Commercial API
- Custom reporting/analysis
- URL (non-article) tracking
- Custom visualizations
- Impact trainings
How can we help?

Sara Rouhi, Director of Business Development
sara@altmetric.com
202 505 0814
@RouhiRoo