

SCHOLARLY AND REAL WORLD IMPACT: THE VIEWS FROM STEM

Science, Technology, Engineering and Mathematics
Science, Technology and Medicine

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Impact – broader perspective

ARC - research impact

“Research impact is the demonstrable contribution that research makes to the economy, society, culture, national security, public policy or services, health, the environment, or quality of life, beyond contributions to academia.”

<http://www.arc.gov.au/general/impact.htm>



“recognition of the need to improve the ways outputs of scientific research are evaluated by funding agencies, academic institutions, and other parties.” (Dec 2012)

Dutch perspective:

Recommendations include:

*‘abolishing the reliance on bibliometrics to assess quality of research and **invest in ‘alternative analyses’ that recognise the impact of research on society.**’ (pg 3)*

*‘Encourage the testing of with ‘post-publication peer review and **different forms of altmetrics.**’ (pg 37)*

[Science in Transition status report Debate, progress and recommendations](#) – June 2014

Wellcome Trust perspective

Opinion: Measure for measuring’s sake? 31 Jan, 2013 *Dr Liz Allen is Head of Evaluation at the Wellcome Trust* <http://blog.wellcome.ac.uk/2013/01/31/opinion-measure-for-measureings-sake/>

*“The research community needs to be pragmatic in moving the field of impact tracking and evaluation forward. We need to develop **better qualitative tools to complement more established indicators of impact** – traditional bibliometric indicators, such as citations, can now be complemented with more qualitative tools such as those provided by [F1000 Prime](#). The Trust is also **exploring the value that altmetrics can bring**. Other channels for the dissemination of research, such as Twitter, are becoming increasingly popular among researchers, and it’s important that we understand their role.”*

Altmetrics represent an ongoing interplay of:

- *Users*
- *Scholarly outputs*
- *Social media tools*
- *Metrics*



Issues and concerns

Which elements should be captured and by whom?

what elements are valid, credible, reliable, useful, etc...

- Like citations– not all altmetrics indicators are created equal
 - *Major developers are keen to ensure their data sources are clearly indicated to build credibility and trust in metrics offered*

Reliability of an altmetrics indicator

- The absence of an indicator doesn't mean that activity isn't occurring
 - *i.e. absence of tweets does not mean lack of discussion around paper, as discussions could be occurring elsewhere on other platforms/forums by community that does not use Twitter*

Gaming

*Collusion to drive up interest in work
Selling social media follows and likes*

- Major impediment to credibility
 - *Major altmetrics' developers are working on ways to identify and eradicate discrepancies in activities*

No clearly articulated standards as yet

- NISO (National Information Standards Organisation)
 - [*\(Alternative Assessment Metrics \(Altmetrics\) Project\)*](#)

Standards are needed!

- **HEFCE** - [Independent review of the role of metrics in research assessment](#) (due May 2015)

HEFCE – [Higher Education Funding Council for England](#)

“Metrics includes the analysis of journal articles and their citations using a range of bibliometric methods, and has more recently expanded to include analysis of a more diverse range of research outputs.

*In addition, a growing array of **social media and web-based alternative metrics** have developed with **potential to capture relevant dimensions of quality or impact.**”*

<http://www.hefce.ac.uk/media/hefce/content/whatwedo/research/howwefundresearch/metrics/Letter-call-for-evidence-metrics-review.pdf>

- **NISO** [Alternative Assessment Metrics \(Altmetrics\) Project](#) (due late 2015)
- **NISO** - [National Information Standards Organization](#)

*“This project is an important step in the development and adoption of **new assessment metrics**, which include **usage-based metrics, social media references, and network behavioral analysis.**”*

*In addition, this project will explore **potential assessment criteria for non-traditional research outputs**, such as data sets, visualizations, software, and other applications.”*

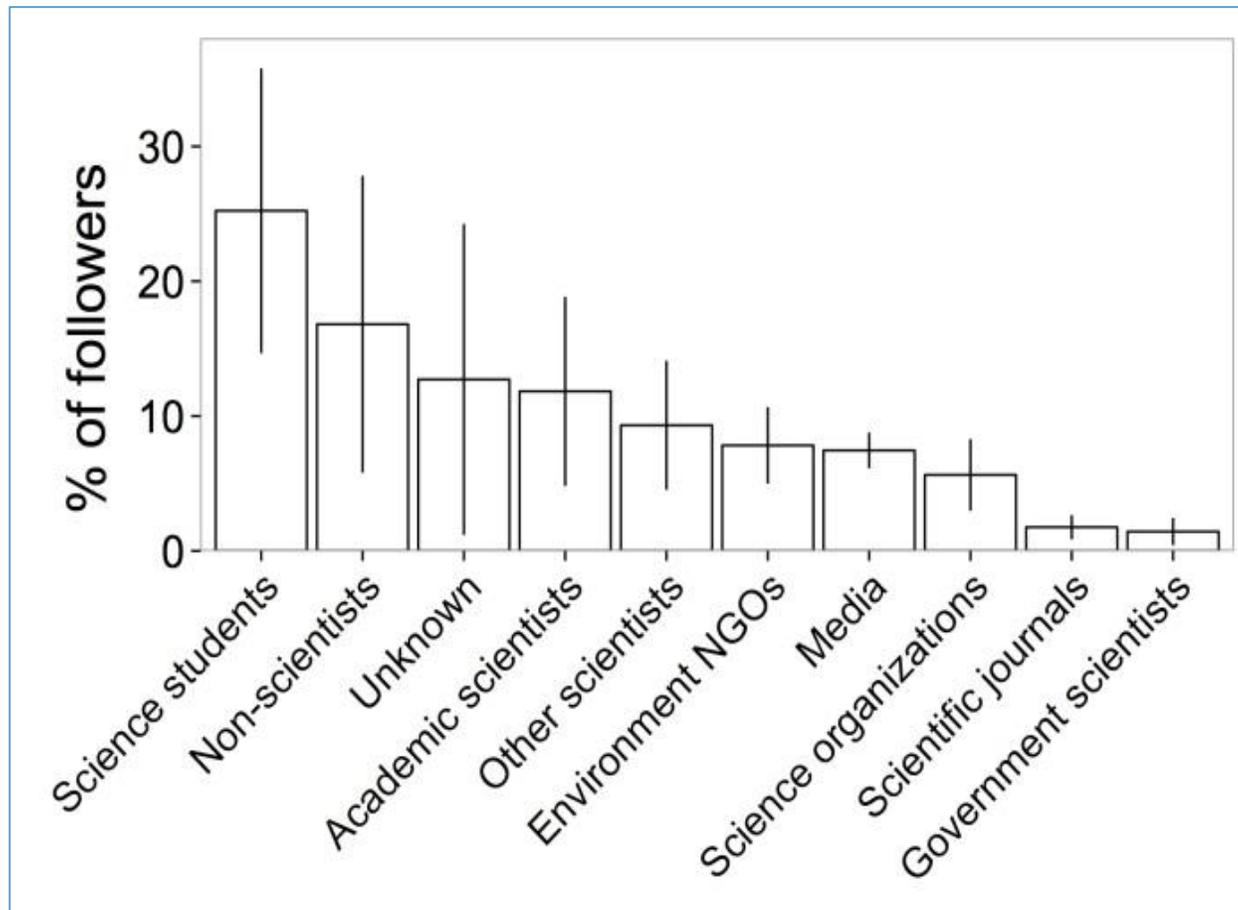
How altmetrics may be used – useful **profiling**

Can identify which sectors (individual and organisation) are aware of a paper	Analysing tweets provides insights as to who is accessing, discussing and sharing a paper
Gain insights into community behaviour online	Understanding which communities are discussing what research can assist with developing dissemination strategies to best reach these groups
Altmetrics have potential to provide insights into demographics	Is communication is reaching the population that is being written about? <i>e.g. articles dealing with specific diseases – are they being accessed by readers in those areas. If not why? Do they have internet access? Are they bypassing original research and accessing secondary sources? What are they?</i>
Compare communication channels	By analysing who is driving discussion about research <i>e.g. the researchers themselves, the science communicators or other groups? Who are they? What social media channels are they favouring?</i>
The audience for research publications and other outputs extends beyond academia	Acknowledges and taps into the activities of ‘professional readers’ – estimated to make up about 1/3 of total readership <i>e.g. industry, government, social and community spheres, health and education sectors</i>

Profiling Twitter followers

Authors of '[The role of Twitter in the life cycle of a scientific publication](#)' used themselves as a case study to highlight the value of profiling their Twitter followers.

Discovered interesting outcomes – the *large non-academic audience*.



Encouraging researchers to undertake this activity may provide valuable insights, e.g.

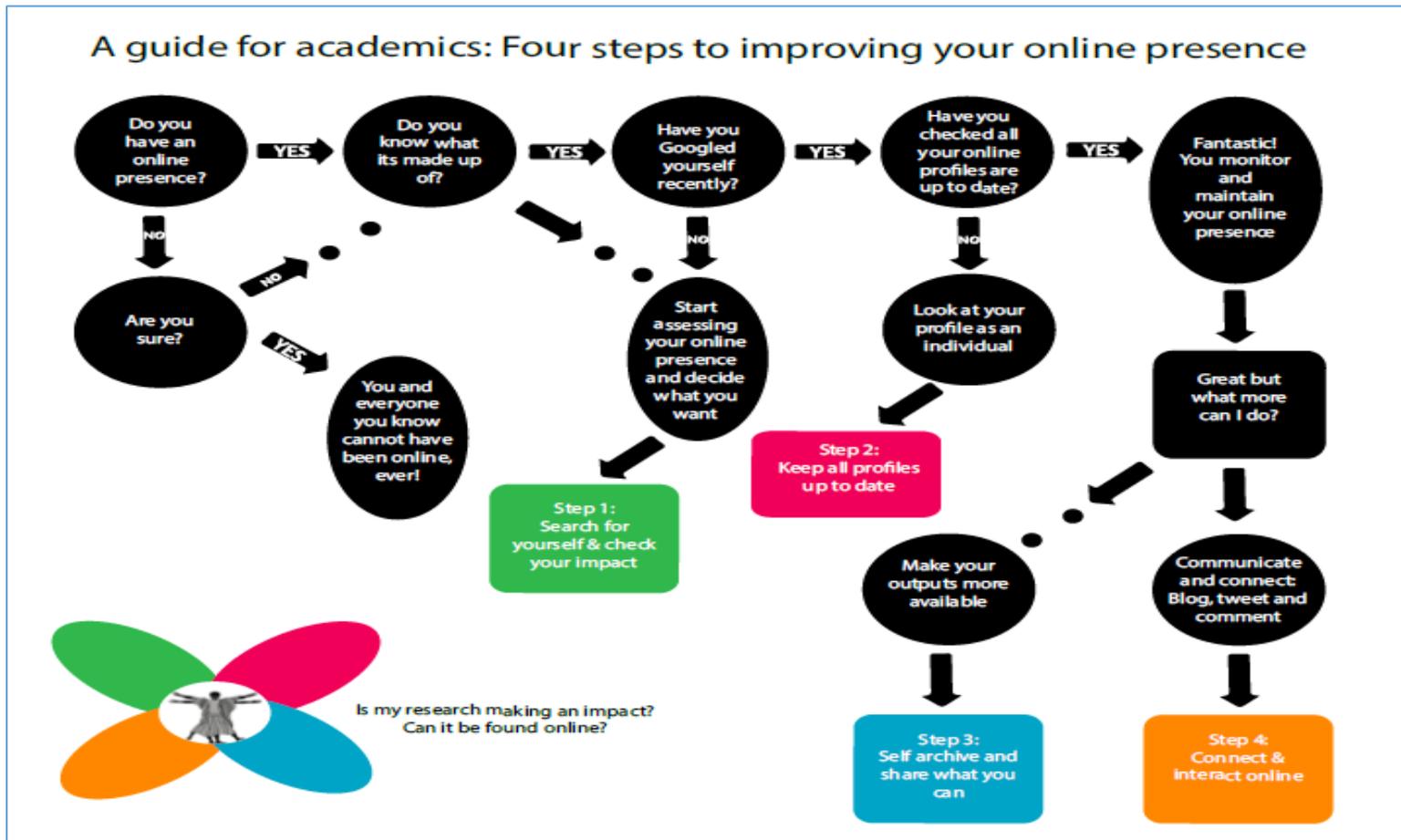
- Who is interested in the work?
 - What aspect of the work?
- How are they using it?
- Are they communicating it further in their own networks?
- Is it possible to cross-reference these followers with those on other SM networks, i.e. Mendeley? RG/Academica.edu to develop a more robust picture of the reach of the work?

What's important to STEM researchers?

*Critical to effective **profiling***

- Some are open to sharing unpublished work ([arXiv](#)) some are not
- Getting feedback on work in progress – is not necessarily accepted by all researchers
 - *i.e. **pre-review**; peer-review; post-publication review*
- Study by [Tenopir](#) (2011) highlights that attitudes to sharing of data varies quite a bit
 - Med - 50% willing to share; Environ and ecology scientists - 80% willing to share
 - *However – most scientists across all disciplines wanted access to others' data*

It begins with effective management of online identities...



- Clean up **profiles** and consolidate identities
- Claim all scholarly output (*Symplectic – new*)
- Share what can be shared
- Participate in targeted social media platforms

- DU Lib role:
- *Educative*
 - *Advocacy*
 - *Advisory*

Bibliography and further reading

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- [Altmetrics Collection](#) (2012) PLOS Collections
- [Papers](#) deposited in arXiv preprint repository
- [Google Scholar](#) (result for 'altmetrics in title' = 79 since 2014)