



Horizon 2020 Policy Support Facility

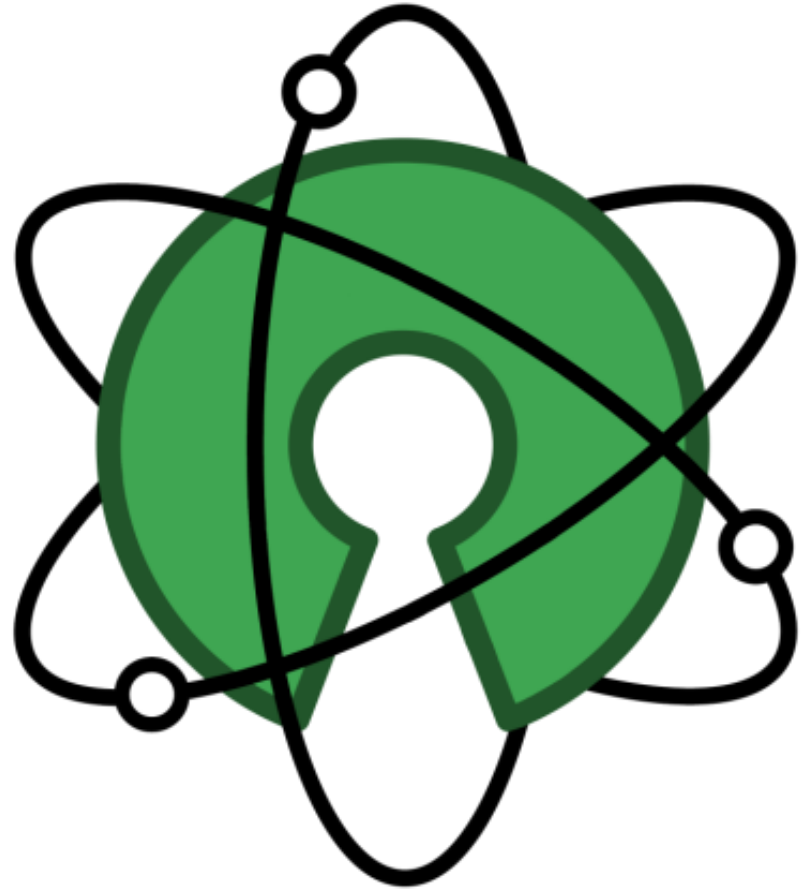
How to use altmetrics in the context of open science

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Open Science

- “the idea that scientific knowledge of all kinds should be openly shared as early as is practical in the discovery process” (Nielsen, 2011)



Holmberg, Kim (2015): Open Science logo. figshare. <http://dx.doi.org/10.6084/m9.figshare.1391887>

Open Science (1/2)

■ Open Science means

- increased **transparency** of the research process
- increased **collaboration** that makes the research process public
- broader understanding of **impact**, that may lead to new forms of incentives
- open to the **public** by writing in non-academic writing styles and promoting citizen science
- **accessible** to anyone through open access publications

- Friesike and Schildhauer (2015)

Open Science (2/2)

■ Open Science Schools of Thought

- Public school: Making the research process accessible and the results comprehensible
- Democratic school: Open access to scientific publications and data
- Pragmatic school: Collaboration and sharing of information
- Infrastructure school: Accessibility to software, applications and computing networks
- Measurement school: Updating traditional metrics to better fit the modern digital age

- Fecher and Friesike (2014)

Academic reward system

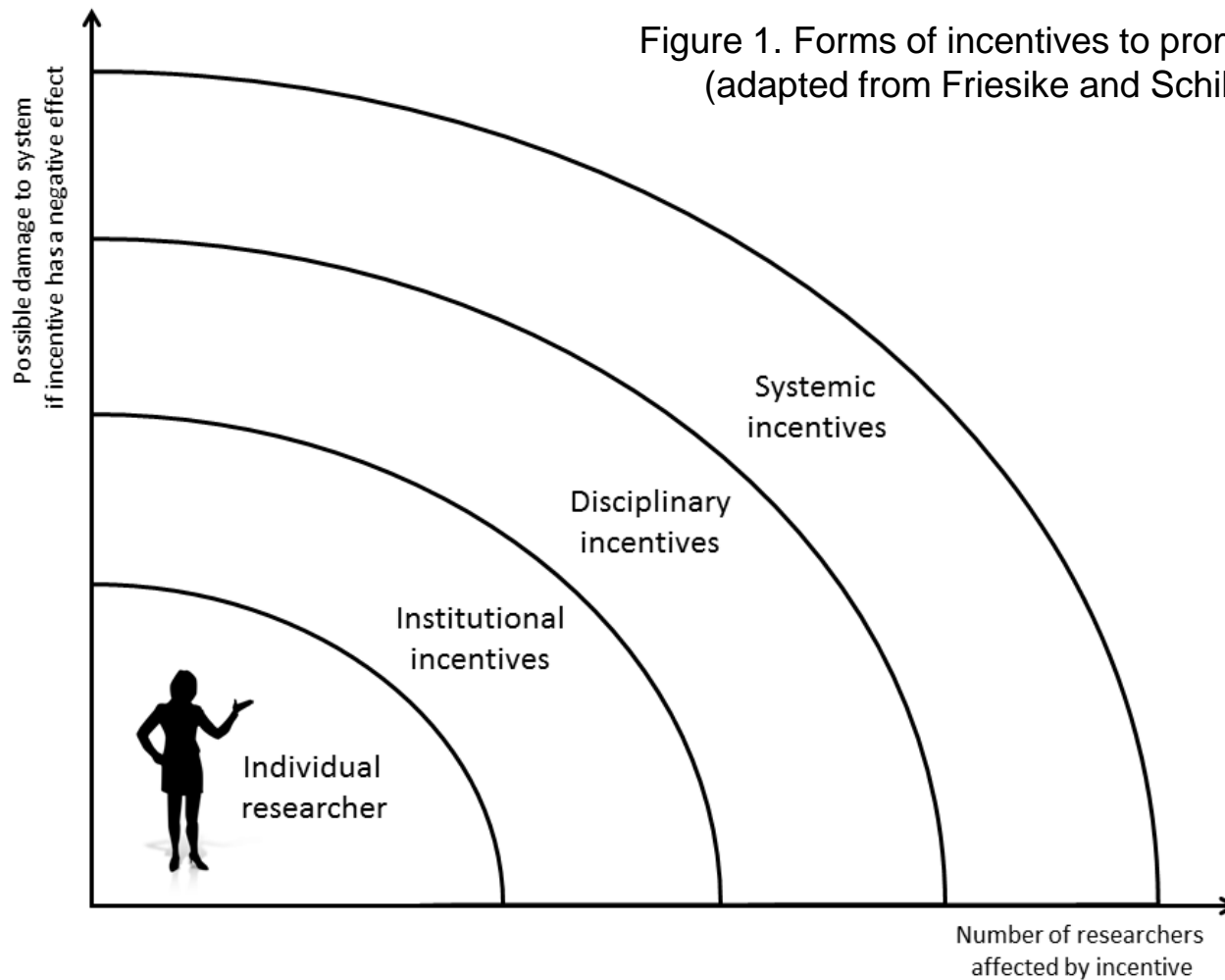


Individual
researcher

1. Citations are part of the academic reward system (Merton, 1968), with highly cited authors tending to be recognized as having made a significant contribution to science.
2. Publications in (so-called) high impact journals tend to be considered as more valuable or as being of higher quality, as it is assumed that the peer review process in these journals is tougher and that only high quality research would thus be allowed to be published in them.

With that citation counts and certain journals have become a proxy for quality.

Academic reward system



Social dilemma of open science

- “What is in the best interest of the scientific system is not what incentivizes the individual researcher” (Friesike & Schildhauer, 2015).



Open Access Citation Advantage

- There is plenty of evidence that OA articles do receive more citations compared to articles that are not openly available
 - For a bibliography of research about open access citation advantage visit <http://sparceurope.org/oaca>.
- “the OA advantage is greater for the more citable articles, not because of a quality bias from authors self-selecting what to make OA, but because of a quality advantage, from users self-selecting what to use and cite, freed by OA from the constraints of selective accessibility to subscribers only” (Gargouri et al., 2010).

“Altmetrics expand our view of what impact looks like, but also of what’s making the impact.”

Altmetrics in the academic reward system

- **Showcase achievements:** Indicates stakeholder interest in highlighting the positive achievements garnered by one or more scholarly outputs.
- **Research evaluation:** Indicates stakeholder interest in assessing the impact or reach of research (**see report 1**)
- **Discovery:** Indicates stakeholder interest in discovering or increasing the discoverability of scholarly outputs and/or researchers.

- **NISO Alternative Assessment Metrics Project (NISO, 2016)**



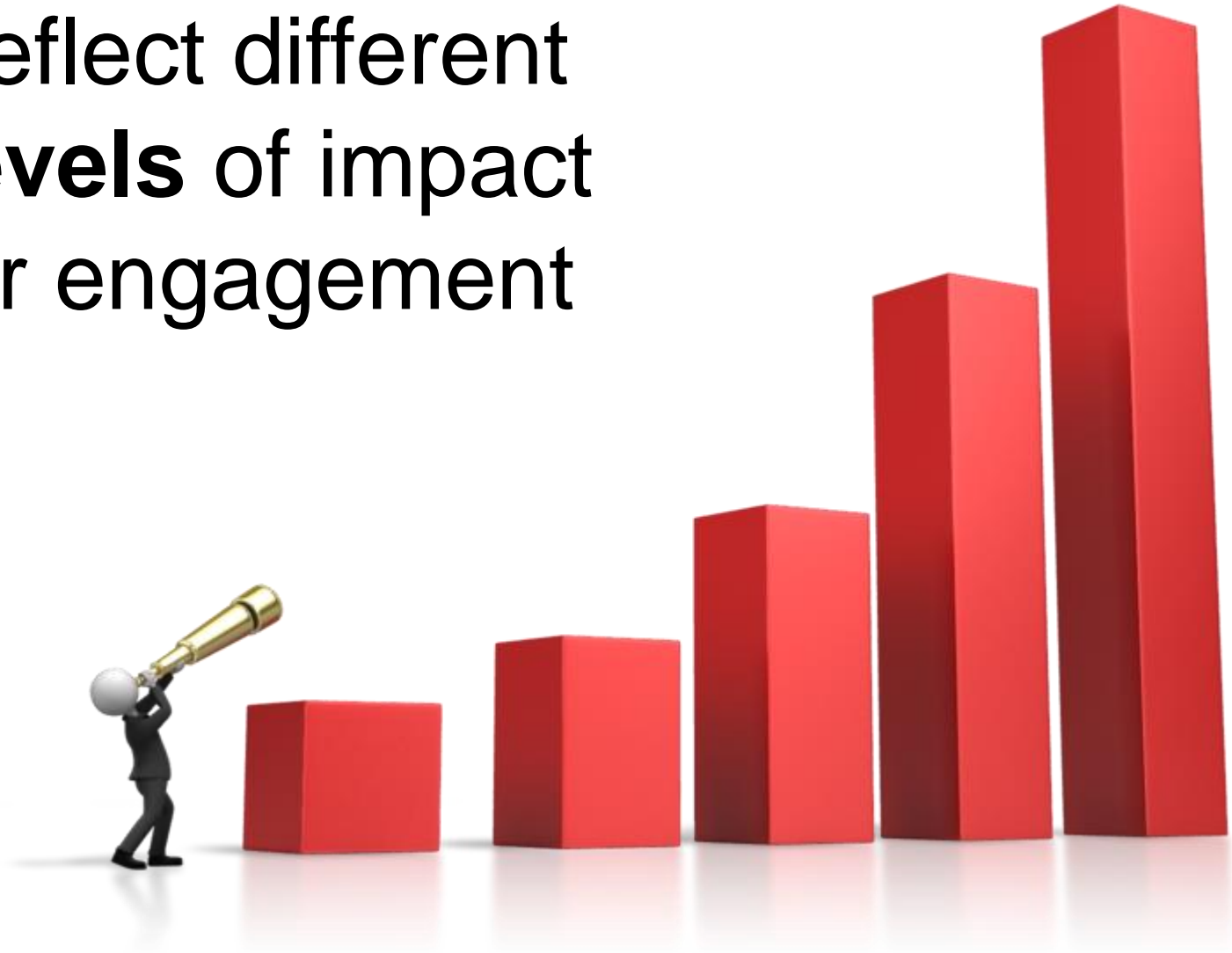
Altmetrics are not limited to scientific articles and books





Altmetrics can
reflect different
types of impact
or influence

Altmetrics can
reflect different
levels of impact
or engagement





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University of Turku Researcher

 open access 50%

 share

- OVERVIEW**
- ACHIEVEMENTS
- TIMELINE
- PUBLICATIONS

ACHIEVEMENTS

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TIMELINE


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6 Online mentions over 9 years




PUBLICATIONS

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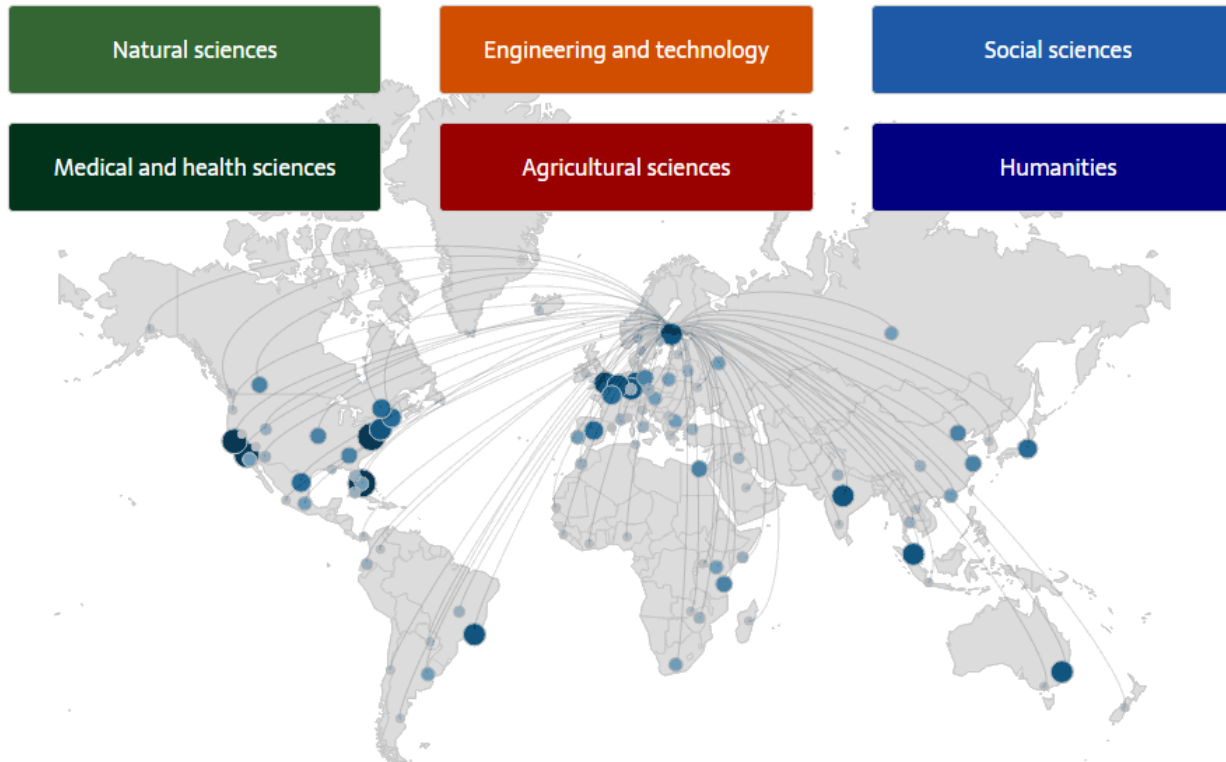
 **What is Library 2.0?**
2009 *JOURNAL OF DOCUMENTATION*
78

 **What is Librarian 2.0 - New competencies or interactive relations? A library professional viewpoint**
2013 *Journal of Librarianship and Information Science*
68 

 **Social capital in Second Life**
2010 *Online Information Review*
52



Top 5% of Finnish research, as measured by altmetrics



Open Access Altmetrics Advantage

- There is indeed evidence that open access publishing and sharing of the articles openly in social media can help researchers and their research to get noticed (e.g., Adie, 2014; Shema et al., 2014; Alhoori et al., 2015; Wang et al., 2015).
- **But is that (OACA and OAAA) enough to push open science?**

Summary of recent recommendations for research assessment

- Metrics should be used to support or complement qualitative expert assessment
- Research assessments should take goals and missions of the evaluated entities and variation by field into account
- Research assessments should be based on best available data and keep both data collection and analytical processes open and transparent
- Indicators and methods should be scrutinized regularly to recognize systemic effects or false precision and they should be updated accordingly in response

Summary cont.

- The reviewed recommendations and calls show a clear desire to update the current research metrics so that they can better reflect
- 1) a broader understanding of the impact research has had and
- 2) to create incentives for adopting open science at all levels.



Research Metrics and Open Science

- According to the Next-generation Metrics report research metrics can have two roles in supporting of open science;
- 1) “monitoring the development of the scientific system towards openness at all levels”
- 2) “measuring performance in order to reward improved ways of working at group and individual level.”



Key points from the questionnaire (1/5)

- **How is research being evaluated at governmental level in your country?**
- There are great differences between the members states but in many cases the evaluations are performance-based, using mainly quantitative assessment of scientific publications and other research and teaching activities and impact statistics as indicators of performance; international peer reviews are used too.
- Please send me links to relevant documents for the final report (kim.j.holmberg@utu.fi)

Key points from the questionnaire (2/5)

- **How is research being evaluated by the main research funders in your country?**
- External reviewers (international expert panels or individual reviewers) are used by as good as all of the member states. Publication lists and impact factors are sometimes used to assess scientific merit. Other aspects such as cooperation with industry or potential for innovations may also be assessed.
- Please send me links to relevant documents for the final report (kim.j.holmberg@utu.fi)

Key points from the questionnaire (3/5)

- Have any of the following recommendations been officially adopted?
- Please send me any missing information with brief description.

| | Amsterdam Call for Action on Open Science | Leiden Manifesto | San Francisco Declaration on Research Assessment | Metric Tide report | Next-generation Metrics report |
|------------------------|---|------------------|--|--------------------|--------------------------------|
| Austria | X ² | | X | | |
| Armenia | | | | | |
| Belgium | X ³ | X | | | |
| Bulgaria | | | | | |
| Croatia | | | | | |
| France | | | | | |
| Latvia | | | | | |
| Lithuania ⁴ | | | | | |
| Moldova | X | | | | |
| Portugal | | | | | |
| Slovenia ⁵ | | | | | |
| Spain | | | | | |
| Sweden | | | | | |
| Switzerland | | | | | |

Key points from the questionnaire (4/5)

- **Experiences about how to avoid the incentives that quantitative metrics risk to introduce?**
- “Connecting indicators with peer review reduces some unintended and perverse effects to a certain degree.”
- “Requiring a limited list of publications in applications for faculty positions.”
- “It cannot be ruled out that external reviewers apply metrics in evaluating a person or proposal.”
- “We consider it important to not simply rely on a single measure but apply various indicators.”

Key points from the questionnaire (5/5)

- **What could be done to break away from the culture of “publish (and be cited) or perish”?**
- **“Indicators should always be used in a mix and the strengths and weaknesses of each indicator be reflected upon.”**
- **“Base the assessment on the research outputs that the researchers finds the most important”**
- **“Take into consideration the engagement of the researcher in teaching activities and in “3rd mission” activities”**

Key points from the questionnaire (5/5 cont.)

- “Publish or perish has been the rule for a very long time. The scientific system is partially based on this rule. To change this habit and build on new experiences with a new system will require time.”

Objectives for the 2nd Working Meeting

- The objectives for the 2nd Working Meeting include:
 - discuss how altmetrics could contribute to the academic reward system
 - discuss how altmetrics could promote wider adoption of open science



Specific questions to consider

- What kind of open science behaviors are there (in general and specifically in the member states)?
- Is the development of the scientific system towards openness being monitored in the member states?
- Is there a consensus on what is wrong with the academic reward system?
- What needs to be done to improve/correct it? How could altmetrics contribute towards this change?
- What steps towards a wider adoption of open science needs to be taken in the member states? How could altmetrics contribute towards this goal?
- Are there any pitfalls of altmetrics that need to be considered?