



Research Metrics: use and abuse

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COPE European Seminar 2015
17th April 2015

Research metrics indicate many different ways of being good



Research metrics can be abused

- Combination of research units to **artificially increase size** for reporting purposes
- **Self-citations and “citation clubs”**, for example
 - **Author self-citations** are normal and desired, but can be abused
 - **Journal self-citations** are also normal and desired, but unscrupulous editors can
 - Refer to many publications in editorials to boost their Impact Factor
 - Coerce authors to refer to additional publications in the journal

Some metrics are easier to manipulate than others, but it's probably possible to game them all
... best practice to address this coming up...

Research metrics can be inappropriately used

- Focusing only on Scholarly Output has been shown to lead to **salami slicing of research into multiple smaller publications**
- DORA statement recommends:
 - **“Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure** of the quality of individual research articles, to assess an individual scientist’s contributions, or in hiring, promotion, or funding decisions.”

Undesirable outcomes commonly result from one metric being used in isolation, and given undue emphasis

From DORA: “The Journal Impact Factor is frequently used as the primary parameter with which to compare the scientific output of individuals and institutions”

... best practice to address this coming up...

Research metrics can also be used to great benefit

- Recap:
 - Research metrics can be abused
 - Research metrics can be inappropriately used
- This is true of any merit system that relies on a single approach
 - Peer review
 - Requesting expert opinion
 - Preparing narratives

Research metrics are an essential part of any merit system, but are insufficient on their own – regardless of how sophisticated the research metrics system is

All merit systems should be based on multiple types of measurement



Best practice for using research metrics in a merit system

- **Always use at least 2 metrics as input into your decision**
 - Every metric has its weaknesses
 - Focusing on a single metric is likely to drive undesirable consequences
 - Drawing on multiple metrics reduces incentive and opportunity to game



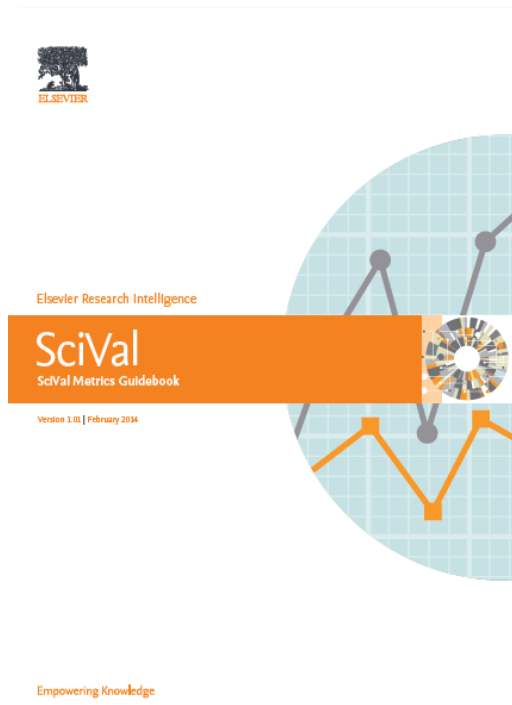
- A **“basket of metrics”** enables a suitable selection to be made
 - Your selection will depend on your question, discipline, variables, and personal preferences
 - **Context is critical** to judge level of merit by benchmarking

Best practice for providing research metrics for merit systems - 1

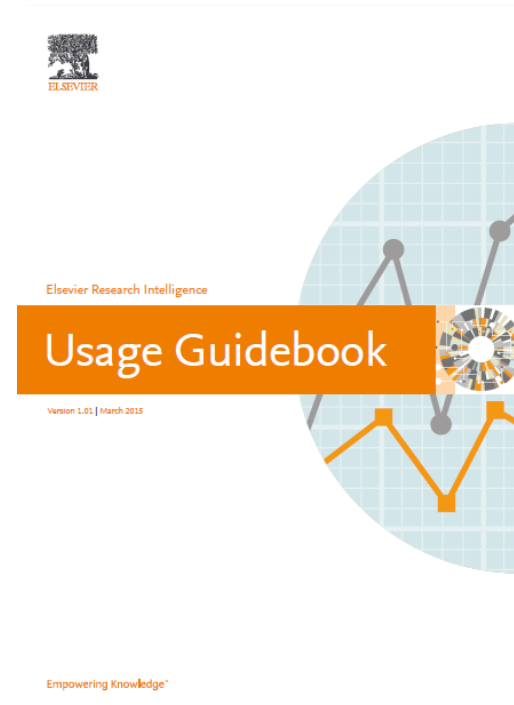
- We offer a **basket of metrics**
- The metrics are constructed in a reasoned way
- The metrics in the basket are generated in an automated and scalable way, so they are **available for all peers**
- **We do not make decisions on your behalf**

Best practice for providing research metrics for merit systems - 2

- **We are absolutely transparent** so you can make your own judgments about whether something is appropriate, or has been manipulated
 - **No methodological black boxes** – no exceptions
 - **Transparency about underlying data contents and structure**
 - **No aggregate / composite metrics**



<http://bit.ly/scivalmetricsguidebook>



<http://bit.ly/usageguidebook>

Research metrics: best practice

For users of metrics in a merit system

- Always use at least 2 metrics as input into your decision
- A “basket of metrics” enables a suitable selection to be made

For suppliers of metrics into merit systems

- We offer a basket of metrics
- Metrics are constructed in a reasoned way
- The metrics in the basket are generated in an automated and scalable way, so they are available for all peers
- We do not make decisions on your behalf
- We are absolutely transparent so you can make your own judgments about whether something is appropriate, or has been manipulated

Communication

- Research community who judge and are judged should ideally define metrics



Response to HEFCE's call for evidence: independent review of the role of metrics in research assessment



30 June 2014

Yes, Elsevier would be interested in participating in a workshop / event to discuss the use of metrics in research assessment and management.

This response covers the following sections:

- Why is Elsevier responding?
- For what purposes are research metrics used?
- Guiding principles for use of metrics in research assessment
- A model for generating and using metrics in research assessment
- Implications for using metrics in research assessment
- Response to the specific questions posed by HEFCE

Empowering Knowledge

<http://bit.ly/hefceresponse>



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Thank you for your time and attention