

## The Responsible Use of Research Metrics at the University of Essex

### Research Metrics

1. The use of metrics has been expanding and publication and citation metrics are widely used as an indicator of research quality by league tables, funders, and increasingly employers.
2. These metrics are likely to grow in presence, use and exposure. It is therefore important to understand the range of indicators that are available, and their strengths and weaknesses. Metrics can refer to research outputs in journals (e.g. impact factor of journal), to groups of researchers (e.g. citations for a department or the university as a whole), or directly to research performance by individuals (e.g. h-index, numbers of citations). Available metrics could thus be used in evaluations of the performance of individuals or groups.
3. A number of important international and national initiatives have sought to define principles and fair practice around the responsible use of metrics by research organisations. These include:
  - i. The Leiden Manifesto (2015)<sup>1</sup>;
  - ii. The San Francisco Declaration on Research Assessment (DORA) (2013)<sup>2</sup>;
  - iii. The UK Metric Tide report (2015)<sup>3</sup>;
  - iv. The establishment of the UK Forum for the Responsible Research Metrics, and recent progress report (2018)<sup>4</sup>;
4. The UK Forum for Responsible Research Metrics (FFRRM) was established in September 2016 as a partnership between HEFCE, Research Councils UK, the Wellcome Trust, Universities UK and Jisc. Under the umbrella now of UUK, it focuses on four activities:
  - i. Advice to the higher education funding bodies on quantitative indicators in the Research Excellence Framework (REF) 2021;
  - ii. Advice on, and work to improve, the data infrastructure that underpins metric use;
  - iii. Advocacy and leadership on the use of research metrics responsibly;
  - iv. International engagement on the use of metrics in research and researcher assessment.
5. Five principles on responsible use of metrics have been highlighted:
  - i. *Robustness*: basing metrics on the best possible data in terms of accuracy and scope;
  - ii. *Humility*: recognising that quantitative evaluation should support, but not supplant, qualitative, expert assessment;
  - iii. *Transparency*: that those being evaluated can test and verify the results;
  - iv. *Diversity*: accounting for variation by research field, and using a range of indicators to reflect and support a plurality of research and researcher career paths across the system;

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<sup>1</sup> Leiden Manifesto: <http://www.leidenmanifesto.org/>; also Dicks D et al. 2015. The Leiden manifesto for research metrics. *Nature* 520, 429-31

<sup>2</sup> Declaration on Research Assessment (DORA): <http://www.ascb.org/dora/>

<sup>3</sup> The Metric Tide: <http://www.hefce.ac.uk/pubs/rereports/year/2015/metrictide/>

<sup>4</sup> <https://www.universitiesuk.ac.uk/policy-and-analysis/research-policy/open-science/Pages/forum-for-responsible-research-metrics.aspx>

- v. *Reflexivity*: recognising and anticipating the systemic and potential effects of indicators, and updating them in response.

### **The University of Essex Context**

6. As research metric indicators become more widely available, it will be important for the University to provide clarity over their use in evaluating internal performance, particularly for the annual reviews of performance that contribute to decisions on awarding permanency and promotion, for annual performance rewards (increments and bonuses), and at the point of recruitment of new academic staff.
7. Research metrics are an option to be used in a variety of internal contexts:
  - a. During academic staff recruitment;
  - b. In allocation of workloads and resource funds;
  - c. In selecting partnerships;
  - d. In staff performance reviews;
  - e. During assessment of cases for permanency and promotion;
  - f. In departmental reviews;
  - g. In strategic planning;
  - h. During REF preparation and/or submission;
  - i. As key performance indicators;
  - j. In benchmarking against comparator institutions.
8. We should recognise that that metric and citation indicators are both influenced and biased by several factors external to the quality of the research output:
  - *Length of time since publication*: citations take time to accrue, and vary across disciplines. As citations can accrue over time, the census date of any citation metric will influence the score;
  - *Research output*: review papers in certain disciplines generally attract more citations than non-review papers;
  - *Discipline*: subject normalisation helps benchmark against similar disciplines elsewhere, but does not work perfectly (there are also significant differences within disciplines);
  - *Gender*: evidence shows that women accrue fewer citations than men<sup>5</sup>;
  - *Career stage*: the Matthew effect of accumulated advantage shows that the more citations an individual has, the more they will accrue;
  - *Research type*: in some disciplines, applied research attracts fewer citations than pure research, in others more;
  - *Data source*: an h-index calculated in Google Scholar is usually higher than one calculated using Web of Science, SciVal or Mendeley because of the wider range of outputs measured by Google Scholar (such as books and reports), and depending on whether the outputs is open access or not.
9. We are committed to using metric indicators responsibly and sensibly. We have used the ten principles of the Leiden Manifesto to guide to produce eight principles

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<sup>5</sup> See Symonds et al. (2006). Gender differences in publication output: towards an unbiased metric of research performance. *PLoS ONE* 1(1) 1–5

## **Eight Statements to Guide the Responsible Use of Research Metrics at the University of Essex**

*i. Quantitative evaluation should support existing expert assessment processes*

Although we recognise the value of indicators to support qualitative, expert peer review and that these are used in a variety of processes, including recruitment, probation, reward, promotion, development appraisal and performance review, we will not base judgements solely on metric indicators. These indicators will be used in conjunction with expert assessment of both research outputs and the context in which they sit.

*ii. Measure performance against the research missions of the institution, group or researcher*

We are committed to deliver research of the highest quality and the visibility of our research is critical to maximising its impact. To this end, publicly-available indicators around the quality of the outlet (journal or conference), collaboration levels and citations of outputs are helpful in monitoring progress against these strategy themes. But we will not depend solely on these metrics to make judgements on individuals.

*iii. Keep data collection and analytical processes open, transparent and simple*

Good practice suggests that departments or schools should select the indicators used to support evaluation of their publication performance at the individual and collective levels. Indicators selected would then be used consistently across all areas of research performance monitoring and would reflect differences between disciplines.

*iv. Allow those evaluated to verify data and analysis*

The publication and citation tools used to collect and monitor research publication data will continue to be made openly available. Academics will be able to see the data relating to themselves, and to make corrections and comment on where necessary. Staff managing publication systems will also endeavour to ensure that data are as accurate and robust as possible and that the quality of the input has been verified.

*v. Account for variation by field in publication and citation practices*

It is recognised that research practices in disciplines vary widely and bibliometric indicators serve some disciplines better than others. In line with best practice, indicators will be normalized wherever appropriate and based on percentiles rather than averages where a single outlier can skew the numbers. The availability or otherwise of bibliometric data will not drive our decision making about research activities and priorities, either individually or collectively.

*vi. Protect excellence in locally relevant research*

It is recognised that most citation counting tools are inherently biased towards English-language publications. It is important that academics producing work in languages other than English are not penalised for this, as well as those with a focus on local or regional research within countries.

*vii. Base assessment of individual researchers on a qualitative judgement of their portfolio*

Indicators are affected by career stage, gender and discipline and we will ensure that we take these factors into account to avoid bias in our judgements when interpreting metrics. It is also recognised that academics undertake a wide range of research communication activities, not all of which can be easily measured or benchmarked. When assessing the performance of individuals, consideration will be

given to as wide a view of their expertise, experience, activities and influence as possible.

Where possible, we will commit to using multiple indicators to provide a more robust and wide-ranging picture. Indicators will avoid false precision; for example, metrics could be published to several decimal places but, given the limitations of citation counts, it makes no sense to distinguish between entities on the basis of such small differences.

*viii. Recognize the systemic effects of assessment and indicators and scrutinise regularly*

As the research activity in the university and in the external environment develops, the research indicators we use should be revisited and revised where appropriate.

10. Senate approved the guidelines and the proposal to sign The San Francisco Declaration on Research Assessment (DORA) (2013).

**Approved by Senate on 1 May 2019**