13th International Conference on Current Research Information Systems, CRIS2016, 9-11 June 2016, Scotland, UK

Snowball Metrics – providing a robust methodology to inform research strategy – but do they help?

Anna Clements[a], Peter I. Darroch[b], John Green[c*]

[a] University of St Andrews, St Andrews, Fife, KY16 9AL
[b]Elsevier B.V. Radarweg 29, 1043 NX Amsterdam, The Netherlands, [c]University of Cambridge, The Old Schools, Trinity Lane, Cambridge, CB21TN

Abstract

Universities and funders need robust metrics to help them develop and monitor evidence-based strategies. Metrics are a part, albeit an important part, of the evaluation landscape, and no single metric can paint a holistic picture or inform strategy. A "basket of metrics" alongside other evaluation methods such as peer review are needed. Snowball Metrics offer a robust framework for measuring research performance and related data exchange and analysis, providing a consistent approach to information and measurement between institutions, funders and government bodies. The output of Snowball Metrics is a set of mutually agreed and tested methodologies: "recipes". These recipes are available free-of-charge and can be used by anyone for their own purposes. A freely available API: the Snowball Metrics Exchange service (SMX), acts as a free "broker service" for the exchange of Snowball Metrics between peer institutions who agree that they would like to share information with each other and any institution can become a member of the SMX. In this paper, we present a use case where the University of St Andrews reviewed its institutional level KPIs referring to the Snowball Metrics recipes. In conclusion, quantitative data inform, but do not and should not ever replace, peer review judgments of research quality – whether in a national assessment exercise, or for any other purpose. Metrics can support human judgment and direct further investigation to pertinent areas, thus contributing to a fully rounded view on the research question being asked. We suggest using a "basket of metrics" approach measuring multiple qualities and applied to multiple entities.

* Corresponding author.
E-mail address: jtg11@cam.ac.uk

1. Introduction

The use of metrics is already an integral part of many universities processes and are a part, albeit an important part, of the evaluation landscape. Universities and funders need robust metrics to help them develop and monitor evidence-based strategies. However, no single metric can paint a holistic picture or inform strategy and so a 'basket of metrics' is required to enable useful metrics-based input[1,2,3]. Indeed, Colledge and James recently described the application of a "basket of metrics" for the metric-based component of understanding journal merit, alongside other evaluation methods such as peer review[3].

That having been said, there is then the challenge of ensuring that any metrics and the data from which they are derived can be used with confidence. This is the challenge that Snowball Metrics[4] solves. Snowball Metrics offer a robust framework for measuring research performance and related data exchange and analysis, providing a consistent approach to information and measurement between institutions, funders and government bodies. This results in a decrease in duplication and an increase in efficiency across the sector.

Eight high-profile UK universities[5] started working together on Snowball Metrics in 2010 to enable informed, evidence-based decision-making. The goal was to agree a single method to calculate metrics that would provide input to institutional and funder strategies, thereby ensuring that apples are compared with apples. These metrics are based on all the data sources available, including institutional, third party and commercially available sources. Snowball Metrics do not depend on a particular data source or supplier, and are owned by the sector. Snowball Metrics, recognised by their snowflake kitemark ❄, aim to become the international standard that is endorsed by research-intensive universities to enable them to understand their strengths and weaknesses, so that they can build and monitor effective strategies (e.g. in which areas to invest, in which to divest, effectiveness of collaborations, engagement with industry).

The output of Snowball Metrics is a set of mutually agreed and tested methodologies: "recipes". These recipes are available free-of-charge and can be used by anyone for their own purposes.

Snowball Metrics have now been defined across the entire landscape of research activities (funding, collaboration, publication, commercialisation); there are 32 recipes available for free to the sector as detailed in table 1. The Steering Group has also been working closely with CASRAI and euroCRIS to extend community participation and provide standards-based representations of the metrics to support interoperability between research systems.

The UK Snowball Metrics Steering Group has worked with a US Snowball Metrics Working Group comprising seven large US universities and has successfully enhanced many of the existing Snowball Metrics with national data and intelligence. This should enable global benchmarking using national data mapping to national denominators for cross-country compatibility thereby driving Snowball Metrics towards global standards.

2. How can anyone use the Metrics?

A freely available API: the Snowball Metrics Exchange service ("SMX") acts as a free "broker service" for the exchange of Snowball Metrics between peer institutions who agree that they would like to share information with each other such that:

- any institution using Snowball Metrics can become a member of the Snowball Metrics Exchange
- the institutional members are responsible for generating their own Snowball Metrics according to the recipes, whether they are calculated using a bespoke system, in a spreadsheet, or in a commercial tool
- each institution can choose to be a member of one or more benchmarking clubs: groups of institutions which have agreed to exchange metrics with each other