Responsible research assessment principles for research information management

Laura Himanen
CSC – IT Center for Science
Finland

This paper introduces the main documents currently defining responsible research assessment and how their principles and guidelines address research information management. The issue is further examined in the context the Finnish research information portal, Research.fi. Research.fi is a pilot case in an EU-funded project that supports the merging policy reforms and paves the way towards an open science aware responsible research assessment system. As part of the project an analysis of Research.fi in terms of its current activities as well as future ambitions in the context of responsible research assessment is conducted. The paper presents preliminary results as well as initial conclusions from the on-going analysis.

Responsible research assessment

The starting point for the discussion on responsible research assessment (RRA) was the publishing of the San Francisco Declaration on Research Assessment, DORA, in 2012. DORA focuses on improving the ways in which research output is evaluated, with special emphasis on the quantitative indicators used. More specifically, DORA highlighted the need to eliminate the use of journal-based metrics and to move towards assessing research on its own merits (https://sfdora.org/). In 2015, the Leiden Manifesto for research metrics continued the discussion on RRA (Hicks et al. 2015). It was a response to the pervasive misapplication of indicators to research evaluation in the form of 10 principles providing a distillation of best practices in metrics-based assessment (ibid., 430.) The Metric Tide was published the same year presenting the findings and recommendations of the Independent Review of the Role of Metrics in Research Assessment and Management, examining more specifically the role of metrics in the UK Research Excellence Framework conducted in 2014 (Wilsdon et al., 2015.) In addition, it looked at the applicability of metrics in different research cultures, compared peer review system with metrics-based alternatives, and explored the effects of growing use of quantitative indicators on different aspects of research culture. The latest, and most comprehensive addition to the discussion on RRA is the Agreement on Reforming Research Assessment (https://coara.eu/agreement/the-agreement-full-text/). The Agreement was published in 2022, and it was drafted as a co-creation exercise with more than 350 organisations from over 40 countries participating. To date more than 500 organisations have signed the Agreement. It sets a shared direction for changes in assessment practices, as well as a timeframe for implementing reforms. In signing, organisations commit to a common vision, which in a nutshell is to recognize diversity of outputs, practices and activities when assessing research. Recognizing diversity requires basing assessment primarily on qualitative judgement, which means that the role of peer-review is central.

Research information management in RRA principles

Even though research information has a significant role in research assessment, whether it be quantitative or qualitative information, these different principles and declarations have

relatively little to say about the management of research information. In terms of data, and data collection, the key principles are openness and transparency – they are highlighted in all four documents. All but DORA also recommend that those evaluated should be allowed to have access to the data concerning them, and the Metric Tide points out that metrics need to be based on the best possible data in terms of accuracy and scope.

In terms of indicators, one of DORA's main messages is the need to eliminate the use of journal-based metrics, such as the Journal Impact Factor. Parallel to DORA, one of the core commitments of the Agreement on Reforming Research Assessment urges the abandonment of inappropriate uses of journal- and publication-based metrics. Leiden Manifesto does not rule out any indicators but does caution against misplaced concreteness and false precision as "indicators are prone to conceptual ambiguity and uncertainty and require strong assumptions not universally accepted" (Wilsdon et al., 2015, p. 431). The Metric Tide reminds us that indicators cannot meet their potential if they are not underpinned by an open and interoperable data infrastructure, and both the Leiden Manifesto and the Metric Tide bring up the need to account for variation by field. In terms of information content, almost all documents highlight the importance of recognizing the diversity of research activities and practices. This means considering a broad range of indicators, also qualitative. Leiden Manifesto is the only document that does not specifically address recognition of diverse activities, but it does include a recommendation to protect excellence in locally relevant research, which refers to the bias towards English-language publications in metrics discriminating regionally and nationally engaged research.

Finally, in terms of a more systemic level there is most variation between the four documents. However, recognizing the systemic effects of assessment and indicators is mentioned in both Leiden Manifesto and the Metric Tide. The Metric Tide goes on to point out that in addition to recognizing the effects, they should also be anticipated, which should result to updating indicators in response. It also addresses the need for the systems used by HEIs, research funders and publishers to interoperate better, as well as harmonizing the definitions of research-related concepts. The Agreement calls for ensuring control and ownership by the research community over critical infrastructure and tools.

Examining the principles of RRA in a research information system

Research.fi is a service owned and financed by the Finnish Ministry of Education and Culture, and implemented by CSC – IT Center for Science, that collects and shares information on research conducted in Finland. The service contains information on the Finnish research system, publications by Finnish organisations, projects funded by public and private research funders, information on researchers operating in Finland and their research activities and statistical information on the development of research resources and impact. All of the information is harvested from external sources, i.e. the systems of higher education institutions, research institutions, university hospitals and research funders, so no information is entered into Research.fi manually. This means that the comprehensiveness and timeliness of the information depends on the organisations providing the information, and each organization is responsible for the accuracy of its own information. For more information: https://research.fi/en/service-info.

CSC is a partner in an EU-funded project, [GraspOS](), that supports the merging policy reforms and paves the way towards an open science aware responsible research assessment system. The project aims at developing, assessing and operating an open and trusted federated infrastructure for next generation research metrics and indicators, offering data, tools, services and guidance. The project includes nine pilot cases that will identify gaps in local infrastructure, investigate and document what attributes are needed to support the development of the services as well as test and evaluate the tools and services that are developed in the project. Research.fi is one of these nine pilots, and the first task of the pilots is to conduct an analysis to describe the current status of their research evaluation aims, context and resources. The analysis includes information about the pilots' local state of affairs in terms of open science and research assessment, what kinds of tools, services or data is used, what is the evaluation context, and finally what are the pilots' ambitions in regard to developing new ways of evaluating open science. All pilots are to examine their current activities as well as future ambitions in the context of responsible research assessment.

Before going into describing how the analysis on Research.fi is conducted, it is important to point out, that it is not an evaluation tool, but a service that collects and disseminates information on Finnish research and its outputs. Having said that, the principles of responsible research assessment are still relevant, as disseminating research information carries a responsibility to ensure that the information is presented appropriately. In analyzing Research.fi we have considered its ability to monitor research activities on a national, organizational, sectoral and individual level, which is a close relative to evaluation. To support the analysis of Research.fi, we conducted two workshops: one internal to CSC including members of the Research Information Group responsible for the maintaining and developing of Research.fi concentrating on the current state of affairs, and the second engaging the stakeholder community represented by the Steering Group of Research.fi focusing on the future ambitions in regard to developing new ways of monitoring open science.

Preliminary results

The analysis is still work in progress, so the results presented here are only preliminary. It is, however, possible even at this early stage to make some observations on the challenges research information management can face vis-à-vis responsible research assessment principles. As mentioned earlier, all information in Research.fi comes from external sources, which means that it is not curated by Research.fi before it is disseminated through the service. In Finland, the Ministry of Education and Culture requires all higher education institutions to submit information on publications, and the information is used as calculation criteria for their basic funding. So it can be trusted that the information concerning the publications of higher education institutions is accurate and comprehensive, and the definitions of different publication types, as well as other publication-related metadata has been harmonized, as recommended in the Metric Tide. But for the rest of the information this is mostly not the case. Primarily the problem is lack of comprehensive information, which challenges search functions – searching for projects in a certain scientific field, for example, will not result in a comprehensive list of all projects currently running, so the search result could be considered as misleading in that sense. In addition, the content of the information is not coherent in that the metadata for older information is not as complete as

it is for more recent information. This is especially problematic as research actors (i.e. the Ministry, research performing, funding and supporting organisations) may now apply for reading access to the public information in the Research.fi and authorized information (i.e. access permitted by the researcher) on researcher profile data. Access is enabled via Research.fi external APIs. If the research actors are not aware of the incoherencies, they might end up compiling statistics, benchmarking or creating indicators based on data that is not based on the best possible data in terms of accuracy and scope, as recommended in the Metric Tide. Being able to have reading access to the information in Research.fi also enables making comparisons between entities that might not be comparable, something that Research.fi has consciously avoided. This is a classic example of irresponsible use of research information, but the question is if ensuring this does not happen is the responsibility of the provider of the information, or the one using the information.

Conclusions

It goes without saying that research information management plays a crucial role in responsible research assessment. So it is fairly surprising how little the established documents in the area of responsible research assessment have to say about it. In general, the documents all emphasize the importance of recognizing a diversity of research activities and practices, the prioritizing of qualitative assessment, and avoiding the inappropriate use of metrics and indicators. But they offer very little guidance on how to collect new types of information to support the assessment of diverse activities and practices, and even less on how to utilize new types of information in assessments.

One of the big challenges in reforming research assessment has to do with research information the assessments will be based on, more specifically assessments that could consider a diversity of research activities and practices. It will require significant development work in terms of research information management: on which new types of research activities and practices can information be collected reliably, how will this information be stored, and utilized. In addition to figuring out these challenges, there is also the question of cost. Collecting information is resource intensive, so we need to be sure the information is utilized well – collecting information for the sake of having information is not an option.

References:
Agreement on Reforming Research Assessment (2022). https://coara.eu/app/uploads/2022/09/2022_07_19_rra_agreement_final.pdf

Hicks, D., Wouters, P., Waltman, L. et al. (2015). Bibliometrics: The Leiden Manifesto for research metrics. Nature 520, 429–431. https://doi.org/10.1038/520429a

San Francisco Declaration on Research Assessment (2012). https://sfdora.org/read/

Wilsdon, J., et al. (2015). The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management. DOI: 10.13140/RG.2.1.4929.13