







# The Nordic Workshop on Bibliometrics and Research Policy

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## How do researchers is Social Sciences and Humanities collaborate? A case study for Flanders

Cristina Arhiliuc

The need for access to resources, for access to data, for the additional expertise to have a good grasp on a subject, for additional ideas are incentives for research collaboration. It is also encouraged by different universities', national, European and international research fund distribution policies, by the existence of international organizations and research groups. Analyzing data from the Flemish academic bibliographic database for the social sciences and humanities (VABB-SHW), this research presents the evolution of co-authorship in in Flanders, Belgium, during the period 2000-2019. The research collaboration is measured both by co-authorship at the author level and at the university level. We analyse the evolution in general, but also distinguish between humanities and social sciences subjects, language of the publication, type of publication, cohorts of authors based on the first publication date in the data. The research analyses how co-authorship evolved over time, how different cohorts of researchers collaborate within their cohort and outside their cohort, which type of publications different cohorts participate in. In order to be able to identify the specificities of co-authorship in Flanders, we plan to compare it with the trends of co-authorship in articles from WoS Social Science Citation Index extended maybe with data from WoS Thomson Reuters Book Citation Index. We also intend to compare our results to data from other countries with PRFSs in place in order to analyse similarities and differences.

E-mail and affiliation: cristina.arhiliuc@uantwerpen.be; Centre for R&D Monitoring (ECOOM), Faculty of Social Sciences, University of Antwerp, Middelheimlaan 1, Antwerp, 2020 (Belgium)



### When indicators are not enough: The Brazilian Qualis experience in combining metrics with peer-review

André Brasil

Brazilian academia produces over 100 thousand journal articles every year. Nearly half of them are in Portuguese, with low coverage in databases such as Scopus or Web of Science. Despite that, the assessment of scientific production has a governing impact on the country's research funding. With the financial pressure and no access to citation data for numerous publications, Brazil adopts a custom-made evaluation methodology, known as Qualis, to pursue a fair research output assessment.

This study investigates Qualis' history, from its conception to the improved model that exists today. In the current methodology, evaluation is conducted in two phases. The first one consists of classifying the production exclusively from indicators such as H5, JCR, and CiteScore. In the second phase, disciplinary committees analyse the suggested classification to either confirm or revise them individually.

Fromthelist of publications in Brazil's most recentevaluation series (2017–2020), this study contrast squantitative and qualitative classifications across 49 disciplines. A high correlation between methods is confirmed in health, life and natural sciences, but the selected indicators cannot capture what social sciences and humanities consider quality. As eries of bibliometric analyses are then applied to the empirical results, leading to the following recommendations for policy makers designing Brazilian evaluation: i) it is possible to narrow the gap between metrics and peer-review by choosing better-suited baskets of indicators; ii) as eparate classification is required for papers indexed only by local databases, such as SciELO.

While the proposed adjustments would help advance evaluation in Brazil, we conclude that the country's experience can inspire any nation where local language publications may be an issue for a comprehensive evaluation.

Keywords: bibliometrics, research evaluation, evidence-informed policy, national evaluation systems.

E-mail and affiliation: a.l.brasil@cwts.leidenuniv.nl; Centre for Science and Technology Studies (CWTS), Leiden University Brazilian Agency for Support and Evaluation of Graduate Education (CAPES)



#### Measuring the Isolation of Research Topics in Philosophy

Pei-Shan Chi<sup>1</sup>and Stijn Conix<sup>2</sup>

Various authors have recently argued that certain parts of academic philosophy are highly isolated from other fields of academic research. The aim of this paper is to go beyond philosophical arguments, and empirically test whether this is indeed the case. More specifically, we investigate whether, and to what extent, topics in 'Philosophy of Science' (PoS) and 'Value Theory' (VT) are more or less isolated than 'LEMM' (Philosophy of Language, Epistemology, Mind and Metaphysics). To do this, we collected 2,369 WoS indexed papers divided into 17 Philpapers topics from these three subdisciplines, and used bibliometric methods toinvestigate the extent to which these are isolated from other parts of academic research. The results show that both PoS and VT are less isolated than LEMM. In addition, general topics in PoS and VT tend to be more isolated than applied topics. These results suggest that the isolation of philosophy could be alleviated by shifting the priority from LEMM to applied PoS and VT.

Apart from the academic relevance, we further investigated the lack of public relevance as isolation outside of academia. To make sure we capture both types of isolation, we rated journal abstracts for the content isolation of the presented research, and we analyzed altmetrics to evaluate the uptake isolation of philosophical papers. These tests suggest that academic philosophy in general is more isolated from the broader public than it should be, and confirm the hypothesis that some subfields of philosophy are more isolated than others. We argue that this lack of public relevance is caused by the incentive structure of academic philosophy and propose a range of individual-level and incentive-level solutions.

E-mails and affiliations: <sup>1</sup>peishan.chi@kuleuven.be; <sup>2</sup>stijn.conix@kuleuven.be; <sup>1</sup> ECOOM, KU Leuven, Naamsestraat 61, 3000 Leuven, Belgium; <sup>2</sup> Centre for Logic and Philosophy of Science, Institute of Philosophy, KU Leuven, Vesaliusstraat 2, 3000 Leuven, Belgium



### The Citationless h-index: Concerning a Heuristic Point of View Toward Hirsch's Index to Quantify an Individual's Publication Record

Bertil F. Dorch, Daniella Deutz and Charlotte Wien

Ideally, calculating a scholar's h-index with any confidence is possible if her citable publications are indexed correctly and exhaustively, and that the same is true for all potentially citing publications. However, no database meets these criteria and consequently the h-index for a scholar depends on the source.

We present a heuristic approach to estimate of a scholar's h-index even when her citation record is incomplete: Assuming a realistic citation distribution and a disciplinary publication practice, the model results in an estimated h-index depending only on the number of publications.

Our model is based on the assumption that the chance of a paper at any given time having many citations is less than the chance of it having few citations.

We model a highly cited author by a citation record leading to the total number of citations being proportional to a slowly increasing function of the number of papers. This allows the h-index to be calculated as a function of that number.

Consequently, if a disciplinary sample are known and the model applies, it is possible to calculate the h- index. Thus, one can estimate the h-index for an author with a known number of publications, but an unknown number of citations.

We test our model against publication data from different research departments and find a good agreement, which allows us to arrive at a disciplinary parameterization ultimately allowing us to predict the expected h-index of a scholar within any of these disciplines, knowing only their total number of publications.

Emails and affiliation: bfd@bib.sdu.dk, chw@bib.sdu.dk; dbd@bib.sdu.dk; The University Library of Southern Denmark



### Using SCOPE to investigate research evaluation practices at Danish universities – work in progress

Marianne Gauffriau, Lone Bredahl, Tanja Strøm and Laura Himanen

Introduction and goal: Research evaluation starts too often from available data, rather than values and aims. We use the SCOPE framework to investigate barriers and incentives among Danish HE leaders for implementing value-driven responsible research evaluation. SCOPE is a five-step framework for conducting value-driven responsible research evaluation. Research Evaluation Group (REG).

Method: Structured qualitative interviews with deans and department heads across Danish universities (n=10). Part I investigates current research evaluation practices at the faculty or department. Part II elicits barriers and incentives to conduct value-driven responsible research evaluations, exemplified by the SCOPE framework. A tool developed in connection with SCOPE, 'Five arguments to persuade HE Leaders to evaluate research responsibly', is used to analyze the interviews.

Preliminary results: Frameworks and internationally set guidelines for value-driven responsible research evaluation (e.g. SCOPE, DORA, and Leiden Manifesto) are not prominent in discussions about research evaluations in Denmark. Instead, current practice is mainly metrics driven with an emphasis on research publications. The interviewees recognized some elements of SCOPE from their current practice and had reservations regarding other elements. Overall, they regarded the value-driven approach represented by SCOPE a good inspiration for future research evaluations.

Conclusion: Research policies are changing towards open science, diversity in the research environments, and team efforts, see for example, the new research framework program 'Horizon Europe'. Traditional publication metrics do not support these policies. New evaluation frameworks like SCOPE are needed to change current practices.

E-mails and affiliations: mgau@kb.dk; lbredahl@bib.sdu.dk; tanjast@oslomet.no; laura.himanen@tuni.fi. Copenhagen University Library, The Royal Danish Library, Denmark, University of Southern Denmark, Denmark, Oslo Metropolitan University, Norway, Tampere University, Finland,

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## Responsible research evaluation at national and organizational level: current developments in Finland and at Tampere University

Laura Himanen and Susanna Nykyri

Responsible research evaluation is on the agenda of Finnish research organizations. Most universities have signed DORA, and there's a national recommendation for responsible evaluation that universities are committed to. In this presentation we will be looking at some of the challenges in implementing principles of responsible evaluation on national and organizational level.

At the national level it is already a tradition that the Ministry of Education and Culture evaluates the maturity of open science of research organizations. Previously the model has emphasized policies and instructions, provided by the organization. The new model considers OS more broadly than previous models, now also the concrete outputs are in focus. In the presentation the new planned indicators are discussed from the perspective of responsible evaluation and the consequences of the new planned model at the organizational level is also anticipated.

At the organizational level, Tampere University is conducting its first research evaluation in 2022, and in the preparations considering disciplinary differences and planning the evaluation with the evaluated have been a priority. The presentation will discuss the results of a bottom-up approach to planning an evaluation: does it support principles of responsible evaluation in a coherent way?

E-mails and affiliation: laura.himanen@tuni.fi; susanna.nykyri@tuni.fi. Tampere Universit



#### Investigating publication influence using citation network features

Henrik Karlstrøm

Recent years have seen a move away from simple citation counts as measures of publication importance towards indicators that consider the age of a publication and general citation practices within its scientific field. However, such field-normalized indicators still raise questions over the dating of publications as well as the correct definition of a given field to normalize against. They are also fundamentally a counts-based approach, which risks discarding pertinent information about how citations of a publication and those of the publications citing it percolate through a scientific field.

This paper explores some ways in which additional features of the full citation network of a publication can be utilized to give an indication not only of the relative importance of a publication, but also *in what way* it has had an influence in the larger citation network. To aid in this, techniques from the study of tree-structured networks (so- called Directional Acyclic Graphs) are applied to give insights into the "depth" and "width" of a publication's influence in the network. This allows for a more nuanced understanding of publication influence, which can be of particular interest to the study of scientific fields and subfields.

E-mail and affiliation: henrik.karlstrom@ntnu.no. Norwegian University of Science and Technology



#### The Sex and ethnicity (or National Heritage) of Nordic Cancer Researchers, 2009 to 2019

Grant Lewison1, Hamish Sharp2, Philip Roe3, and Richard Webber4

This project aimed to show which of the five Nordic countries favoured the advancement of female cancer researchers, and whether there had been changes over the last decade. We listed the countries' cancer research papers in the Web of Science (WoS) for three years, 2009, 2014, and 2019. We identified the names of the individual authors working in these countries based on their individual addresses. Most of them had given names recorded, and these could be sexed with the aid of several sources, including a list of all UK doctors, several specialised websites, and personal contacts. Those with only initials rather than given names could often be identified from others with given names and so sexed as well. We used the Origins database to determine their ethnicity or national heritage based on their surnames.

Our results showed that in 2019, almost 95% of the researchers could be sexed, but fewer in earlier years when initials were more commonly used. The proportion of females increased by about 10% in Denmark and Iceland to about 52%, by somewhat less in Norway and Sweden, but has declined slightly in Finland. Males have been more productive than females in all countries, and they are in more senior positions as shown by more last authorships (65%, compared with 43% of first authorships). There has also been a modest increase in the percentages of non-Nordic researchers. The heritage of most of these authors is west European, but an increasing number are from outwith Europe.

E-mails and affiliation:<sup>1</sup> King's College London grantlewison@aol.co.uk;<sup>2</sup> University of Exeter hcs253@gmail.com; <sup>3</sup>Evaluametrics Ltd, St Albans philip@evaluametrics.co.uk;<sup>4</sup> Origins Ltd, London richardwebber@originsinfo.com



# Gender Distribution in Scholarly Communication at Aalborg University During the Pandemic. What Does the Data Say?

P. M. Melchiorsen, A. Lykke

The COVID-19 pandemic undisputedly had an impact on research and research environments. The extent and possible lasting effects of which are still to be determined. Aspects of the development have already been examined in several international publications. The intention with the present study is to examine the possible effects on Aalborg University regarding gender equality, when looking at possible changes in:

- Publication distribution
- Press cuttings
- BFI points

Method: The data from 2020/21 is compared with data from the preceding 5 years (2015-2019). Data will be drawn from the local PURE installation at AAU. The data collected will be examined on faculty level, giving us the possibility to including the broad scope of the technical, medical, social sciences and humanities.

Preliminary Results: We can confirm aspects of results found in literature, but on the other hand other tendencies are displayed in our local statistics. An example are the PhD-students, were we see the tendency that the female PhD- students publish less in more prestigious journals than their male counterparts, and more in the less prestigious during 2019-2020. Another example is Press cuttings, which show that young female scholars from AAU have a stronger presence in Danish media outlets in 2020 than before.

This presentation is part of a more extensive study. When data from 2021 and 2022 becomes available, this will also be included, e.g., to verify if the possible changes detected may regress as time goes by.

E-mails and affiliation: pmm@aub.aau.dk, al@aub.aau.dk. Aalborg University Library



#### Semantic knowledge discovery

Gustaf Nelhans\* and Johan Eklund

Since many databases lack relevance ranking, a citation-based approach can be a valuable complement since it is possible to use citation-based data to indicate centrality, relevance, or visibility in the research community. However, using bibliometric methods in the humanities is often challenging since a lot of the research literature is not indexed in the traditional citation databases that we generally use for bibliometric mapping.

We introduce a combined bibliometric and semantic approach to extend a network of bibliographic records by incorporating a larger set of records lacking bibliometric features based on the semantic similarities between their titles. In order to expand the set of identified relevant articles, we used the Universal Sentence Encoder (USE) algorithm developed by Google Research to generate semantic vectors for the titles.

We searched several different databases, of which some include citation data, to create a pool *C* of candidate documents within the selected subject area. A set *A* of documents was obtained from a citation database to generate the initial network of articles. We then calculated the bibliographic coupling of articles as quantified by their shared references.

We manually selected a small set  $S1 \subset A$  of documents representing different topical clusters as a seed for the expansion based on semantic similarities. For each document  $d \in S1$ , we ranked the documents in *C* in ascending order according to their cosine distance to the title vector assigned to *d*, then selecting the *k* documents closest to *d*. This procedure gave us a set  $S2 \subset C$  of documents to read.

The results were evaluated using qualitative analysis to determine they were thematically relevant to the present information needs.

E-mails and affiliation: gustaf.nelhans@hb.se; DataasImpactLab,SwedishSchoolofLibraryandInformationScience, UniversityofBorås \*Corresponding author



### Acknowledgements to funding organisations

Hans Pohl

This project studies whether researchers acknowledge the funding organisations in their scientific publications. Given the author's position in a funding organisation (STINT, the Swedish Foundation for International Cooperation in Research and Higher Education), this question is of importance for the management and evaluation of the programmes. Moreover, there is also access to several types of data relevant for the project.

Typically, funding organisations require acknowledgements in publications emanating from a project and this is formalised as a part of the funding contract. It is also common that the final report from the Principal Investigator (PI) should include a list of such publications. STINT follows these norms.

One trigger of the study was that lists of publications in final reports are seldom carefully analysed. They are also not complete, partly due to the long lead time for a study to get published. The author has experience from several funding organisations in Sweden and none of them study the publications emanating from the funded projects systematically.

A query was developed to find Scopus publications acknowledging STINT. The identified publications were analysed in SciVal and Excel to understand how different institutions, scientific fields and countries are represented. Some indicators such as the citation impact were also studied. In a comparison with data from the project management system, an indicator "cost per publication acknowledging STINT" was calculated on institutional level.

The core of the project was a study of all 51 projects that were granted mobility funding for three years based on applications submitted 2015. The PIs on the Swedish side were studied to answer questions like:

• How many publications did they make, how many include the partner country indicated in the application and how many acknowledge STINT?

• How many publications did they list in the final report, how many are possible to find in Scopus and how many of them acknowledge STINT?

One conclusion of the study on individual level is that the Scopus search in several cases identifies a higher number of publications than what is listed in the final reports. It also reveals that even if a publication is listed in the final report, it is not at all sure that it acknowledges STINT. In September, a questionnaire will be distributed to these 51 PIs, to get their perspectives on acknowledgements in publications.

The overall results of the study indicate that STINT should probably move away from asking for lists of publications in the final reports and instead push harder on the requirement of acknowledgements in publications. Given the better coverage and the much more convenient possibilities to analyse publications extracted directly from Scopus, such a step would not only save work for the PIs, it could also lead to a better use of the data.

A presentation at NWB would be an excellent opportunity to share some results of this study and discuss various approaches to use publication data in the evaluation of research funding. Suggestions how to encourage researchers to make acknowledgements are also very welcome.

E-mail and affiliation: hans.pohl@stint.se. Swedish Foundation for International Cooperation in Research and Higher Education (STINT)



#### National recommendations on responsible research assessment

Janne Pölönen and Henriikka Mustajoki

Starting with the DORA declaration <u>https://sfdora.org/</u>), the Leiden Manifesto on research metrics, and the Metric tide report, an increasing number of international statements outline guiding principles for responsible research assessment (Curry et al., 2020). Recently, recommendations for implementation of responsible research assessment at national level have been produced in the Netherlands (VSNU, NFU, KNAW, NWO and ZonMw, 2019), Finland (Federation of Finnish Learned Societies, 2020), and Norway (Universities Norway, 2021).

Instead of narrow focus on research, publications and metrics, responsible assessments entail rewarding broad range of open science practices (Moher et al., 2020), recognizing diverse outputs, activities and impacts of academic work, as well as respecting the differences between fields (Mustajoki et al., 2021). In this paper we present a work in progress aiming at taking stock of the diverse responsible assessment policies. We compare the three national recommendations from the Netherlands, Finland and Norway to identify common topics and differences. We also compare the scope and context of the national recommendations with responsible metrics statements (DORA, Leiden manifesto and Metric tide).

E-mails: and affiliation: janne.polonen@tsv.fi; henriikka.mustajoki@tsv.fi.Federation of Finnish Learned Societies

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### Breaking down the metrics: A comparison of standard, collab and fractional CNCI indicators across Nordic institutions

Ross W. K. Potter and Martin Szomszor

Category Normalised Citation Impact (CNCI) is a widely used indicator for institutional benchmarking and considered a key indicator by policymakers and research managers. Consequently, it greatly impacts wider perception of an institution's research portfolio quality. CNCI, however, combines all entity contributions, obfuscating individual inputs and preventing clear insight and sound policy recommendations if not correctly

understood. This is especially important given that greater collaboration (i.e., international) leads to higher CNCI. Variations on the CNCI indicator, such as fractional counting (Waltman and van Eck, 2015) and Collab CNCI (Potter et al., 2020) have been formulated to better account for collaboration. Collab CNCI extends this further by dissecting articles into collaboration type groups (i.e., domestic vs international).

Here, using Web of Science article data, we compare these three CNCI variants for Nordic institutions to better understand (1) differences between the indicator variants and (2) the performance of articles within each collaboration group. We demonstrate that, relative to the standard approach, fractional and collab methods produce lower, often similar, CNCI values despite fundamentally different calculation approaches.

Dissecting articles by collaboration type shows that both standard and fractional CNCI increases as collaboration increases from domestic single institution articles, through international bilateral, up to international quadrilateral plus articles. However, Collab CNCI does not necessarily follow this pattern (e.g., domestic single institution articles, compared to other collaboration types, performed the best for Technical University Denmark between 2009 and 2014). This dissection is, therefore, vital for better understanding constituent elements of institutional performance and informing policy making.

E-mail and affiliation: ross.potter@clarivate.com. Institute for Scientific Information, Clarivate, England, United Kingdom

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## Younger researchers tend to collaborate more internationally than their senior colleagues

A bibliometric study of Norwegian university staff

Kristoffer Rørstad, Dag W. Aksnes and Fredrik Niclas Piro

This paper addresses the relationship between age and international research collaboration. The main research question is: do younger researchers collaborate more internationally than their senior colleagues? A common assumption is that younger generations are generally more internationally oriented than older generations. On the other hand, senior researchers may have larger international networks compared to younger colleagues.

The study is based on data for 5,600 Norwegian researchers and their publication output during a three-year period (44,000 publications). Two indicators for international collaboration are used: The share of researchers involved in international collaboration measured by co-authorship and the average proportion of publications with international collaboration per researcher. These indicators reflect two different dimensions of international collaboration. The main conclusion is that international collaboration tends to decline with increasing age. This finding holds for both indicators analyzed. However, the generational differences are not very large, and other variables such as the field of research explain more of the differences observed at an individual level.

E-mail and affiliation: kristoffer.rorstad@nifu.no; dag.w.aksnes@nifu.no; Fredrik.piro@nifu.no; Nordic Institute for Studies in Innovation, Research and Education, Økernveien 9, 0653 Oslo, Norway



### The use of bibliometrics in the design of a new generation of national research assessments in Norway

Gunnar Sivertsen<sup>1</sup> and Jon Holm<sup>2</sup>

Unlike the other Nordic countries where research assessments are self-initiated by the universities, Norway has a national research assessment system which is centrally organized by the Research Council of Norway and mandated by the Ministry of Education and Research. The evaluations focus on specific subjects and thematic areas to facilitate a critical review of the Norwegian research system in an international perspective. International expert panels perform the evaluation. The aim is formative, not summative: to form the basis for specific recommendations on measures to encourage increased quality and efficiency in research.

Differently also from the similar system in the United Kingdom, the Research Excellence Framework, the Norwegian research assessments have no direct consequences for funding (Sivertsen, 2017). Instead, the institutional funding system is partly indicatorbased(Sivertsen, 2018). One of these indicators is the National Publication Indicator (NPI, npi.nsd.no) which has parallels at the national level in Denmark (Aagaard, 2018) and Finland (Pölönen, 2018) and at the local level in Sweden (Hammarfelt, 2018). Although designed for another purpose than evaluation, the NPI has proved useful in the research assessments in Norway, not as an evaluative tool, but with its underlying data collection through the national CRISTIN system. Its comprehensive coverage was particularly important in the evaluations of the humanities in 2017 and of the social sciences in 2018 (Holm, 2021) where the limitations of Scopus and

Web of Science have been documented (Aksnes & Sivertsen, 2019). A similar usefulness has been experienced in the self-evaluations of e.g. University of Copenhagen (2016-2018) and University of Helsinki (2018- 2019). Particularly interesting in this respect is the development of self-evaluations at Uppsala University between 2007 and 2017 (Sivertsen, 2021).

Norway is now launching a third generation of national research assessments. The first generation (starting in the nineties) mainly focused on disciplines (e.g. physics) and the second on major areas of research (e.g. humanities) or thematic areas (e.g. climate research). The ambition for the third generation is to be as useful as possible for the institutions themselves by efficiently matching the disciplinary structure of the evaluation to their organizational structures. We will illustrate how we meet this challenge with an advanced use the NPI for the preparation of research assessments to be started in 2022 in the physical sciences and the life sciences.

E-mail and affiliation: gunnar.sivertsen@nifu.no, Nordic Institute for Studies in Innovation, Research and Education (NIFU); 2 joh@forskningsradet.no The Research Council of Norway,

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## A comparative analysis of international scientist mobility between data sources and measurement pathways

Dimity Stephen and Stephan Stahlschmidt

Identifying and measuring international mobility of scientists is challenging because mobility is an empirically fuzzy construct and can be operationalised in many ways. Furthermore it can be measured using different data sources with their intrinsic, but concealed perspectives on international mobility. At the same time national participation in global migration flows of scientists fosters national participation in scientific progress and is promoted by several national science agencies. Hence, we contrast global mobility estimates across the entire bibliometric databases Web of Science, Scopus and Dimensions with 2 Million public ORCID CVs and 6 Million user-curated ResearchGate profiles to observe how data sources and operationalisations partially pre-determine the measurements.

We observe that the underlying database has the largest effect on the measured mobility counts, while a high degree of correlation persists across varying bibliometric operationalisations. Generally the publication-based data sources correlate more strongly with one another than they do with the employment-based ORCID records. Also the user-curated data in the Web of Science and ReseachGate report a doubled share of mobile authors if compared to the algorithmic approaches of Scopus or Dimensions indicating potential limits of automatic procedures. Finally in each source, the ten countries with the largest shares of mobility account for over 60% of all mobility events with some greater visibility of African and South American countries in ORCID and ResearchGate. The reported measurement variation quantifies the (in-)accuracy of bibliometrically collected data on international mobility of scientists and supports the evaluation of mobility programmes.

E-mail and affiliation: stahlschmidt@dzhw.eu; Affiliation: German Centre for Higher Education Research and Science Studies (DZHW)



### Signing DORA. Why (maybe) not

Hannelore Vanhaverbeke

Signing the San Francisco Declaration on Research Assessment is heralded as a way to assess the degree to which an institution handles metrics responsibly and seems to be 'de bon ton' to demonstrate allegiance to Open Science principles. Apart from the question whether signing equals implementing, the fundamental question is whether DORA is the best call for action on the road to a responsible use of metrics.

This paper makes a case against the 'witch hunt' on journal level metrics, as exemplified by declarations such as, but not limited to, DORA. Instead it calls for a more balanced approach to these metrics by showcasing the ways in which they can play a useful role in assessment procedures and publication strategies without violating methodological and deontological basic principles. At the same time the paper will shortly highlight why article level metrics and altmetrics are not necessarily better alternatives. In fact, one can consider the dismissal of a whole group of metrics as 'irresponsible' in itself as irresponsible. Finally the paper calls for dropping the term

'responsible metrics' and consistently replacing it with 'a responsible use of metrics' (there is a reason why one talks about 'responsible drivers' and not 'responsible cars').

Actually, the author strongly feels that in the move towards a more correct use of metrics, the balance between metrics and narratives is veering too sharply away from quantitative approaches and ignores the many ways in which they, even journal level metrics, can play a constructive role.

E-mail and affiliation: hannelore.vanhaverbeke@kuleuven.be. Ku Leuven



#### Open Science Policy at the University of Southern Denmark

Evgenios Vlachos and Asger V. Larsen\*

On March 9<sup>th</sup>, 2018 the University of Southern Denmark adopted its first Open Science Policy<sup>1</sup>. The policy started as a research data policy, but was expanded with a section on Open Access, and thus included two of the elements of the Open Science family of themes. The work was done with the library as a main contributor but there was close collaboration with other stakeholders at the university: The Research and Innovation Organisation, the IT department, and the faculty research support units. These organisational units were all represented in the newly formed SDU Research Data Management Forum, and so this forum was perfectly equipped for the task. The policy was built on a framework published earlier (December 2016)<sup>2</sup> by the Technical University of Denmark, but with the added Open Access-part. To cover the whole university but at the same time respect the different local research environments at the department level, it was decided to make an overall SDU policy that would set the frame, and then help the departments create their own guidelines meeting the requirements at the university level. The overall policy has three elements: new projects must create a Data Management Plan, research data must be FAIR, and research results should be published Open Access. The departmental guidelines were revised in 2021 and included a commitment to the San Francisco<sup>3</sup> and Sorbonne Declarations<sup>4</sup> and lastly a recommendation of obtaining an ORCID profile for all SDU researchers.

The paper will describe the process of developing the policy and revising the departmental guidelines. It will showcase some of the differences in the guidelines from the departments. The policy of the Research Department of the library will be presented in full as an example.<sup>5</sup>

The paper will describe the challenges met during the development, implementation phase, and the revision phase and discuss the possibilities for meeting those challenges.

E-mail and affiliation: \*Corresponding author: avla@bib.sdu.dk.The University Library of Southern Denmark, Denmark

<sup>&</sup>lt;sup>1</sup> SDU Open Science Policy,

https://www.sdu.dk/en/bibliotek/forskere/research+data+management+support/the+sdu+open+science+policy<sup>2</sup> DTU Policy of the retention of primary materials and Data, https://www.bibliotek.dtu.dk/english/servicemenu/publish/research-data/policy<sup>2</sup>

<sup>&</sup>lt;sup>3</sup> The San Francisco Declaration on Research Assessment, https://sfdora.org/

<sup>&</sup>lt;sup>4</sup> The Sorbonne Declaration on Research Data Rights, https://sorbonnedatadeclaration.eu/

<sup>&</sup>lt;sup>5</sup> The guidelines of the Research Department of the University Library of Southern Denmark, to be published.



#### Using processing improvement models to increase research productivity

Caroline Wraae<sup>1</sup> and Charlotte Wien<sup>2</sup>

'Lean process improvement systems', originally developed by Toyota and mainly used for private sector business, has recently been adopted by healthcare researchers (Ohno, 1988; Daudelin et al., 2015; Caiado et al., 2020). Previous researchers have argued that process improvement systems have a great potential within research. They argue, that there is a need for more efficient research procedures. Previous studies have shown that implementing process improvement systems on research processes has increased research productivity (Strasser & Cola, 2013; Øvretveit et al., 2011; Andrew & Micheal, 2003; Daudelin et al., 2015; Ohno, 1988; Lawal et al., 2013; Groves et al., 2013).

Based on the theoretical foundation of Toyota's 'Lean', Odense University Hospital and University of Southern Denmark, have created the Model of Improvement with the goal to create more efficiency, better methods, organization and treatment beneficial for patients. Recentlyit has been decided to test if The Model of Improvement can provide the premise to create a shared theoretical model among clinical researchers (Region Syddanmark, 2019; Brixen et al.; Anhøj, 2015; Hansen et al., 2017).

However, no or very little research has been done on applying improvement systems to research (Lawal *et al.*, 2013). The question is: How can the potential success or failure of process improvement systems applied to research be measured and does it make sense to do so? This is the topic of our presentation. For our presentation, we will firstly outline the cornerstones and success criteria of the *Model of improvement*, then seek to identify relevant bibliometric measures and finally discuss strengths and weaknesses of such procedures. We will conclude that bibliometric measures can be used to partially assess the success/failure of process improvement systems applied on research, but that we strongly recommend, that such quantitative measurements are combined with qualitative assessments.

Email and affiliation: 1: <u>carolinewraae@gmail.com</u> 2: <u>chw@bib.sdu.dk</u>; University Library of Southern Denmark, University of Southern Denmark.

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# Collecting author affiliation data for publications not indexed in the Web of Science in the context of research evaluation

Peter Aspeslagh

During the 2019 edition of the Nordic Workshop on Bibliometrics and Research Policy we presented the outlines of an author affiliation data collection project in the context of a recently introduced internationalization parameter in the Flemish performance-based research funding system. As the process nears completion, we present an overview of the evolution of the project.

The collection of author affiliation data not available in the Web of Science provided challenges on several levels. First, the nature of the publication dataset led to a thorough combination of both querying external bibliographic databases and manual processing. Second, unambiguous interpretation of the actual affiliation data on scientific publications required substantial coaching of team members. Third, the structural registration of affiliated institutions pointed out the need for an extension of common organizational databases, more specifically for national, non-Anglo-Saxon publications. Finally, the dynamic character of the process necessitated a constant adaptation of the data registration infrastructure.

This process will be repeated annually in a Flemish context, requiring precise documentation of the complete set of procedures. However, as author affiliation data is increasingly becoming an important variable in research evaluation, sketching the process during the Nordic Workshop might offer inspiration for other teams dealing with similar challenges.

E-mail and affiliation: <u>peter.aspeslagh@uantwerpen.be;</u> Centre for R&D Monitoring (ECOOM), Faculty of Social Sciences, University of Antwerp, Middelheimlaan 1, B-2020 Antwerp (Belgium)



## The rapid increase in the number of bibliometric analyses of scholarly production

Ole Ellegaard

Bibliometric analysis (BA) is increasingly used to evaluate the literature in various scientific as well as applied fields. Recent data shows an almost exponential increase in the number of published BAs. The area is now dominated by scholars with affiliations outside the traditional LIS (Library and Information Science) field. Despite the increase in the amount of BA literature, there are relatively few publications in the non- LIS literature that discuss bibliometric methods or the benefits of using this type of analysis. Discussions about this are primarily still taking place in the LIS literature.

It has raised concerns about the outcome of the process. It is possible that the publication procedure is decoupled from the normal context that guarantees the quality and integrity of the bibliometric product.

We analyse and discuss the production as well as the impact of the literature that uses bibliometric analysis. This may shed light on who are newcomers to the field and what motivates their use of bibliometric methods.

It has recently been found by González-Alcaide (1) that many so-called 'transient authors' with only a single publication are involved. This can lead to speculation about the use of BA as a shortcut to rapid publication within a field.

We observe a relatively smaller impact of the BA articles in the non-LIS literature compared to the similar LIS- literature. It leaves a long tail of articles with few citations that are apparently not used by the relevant communities.

González-Alcaide, G. (2021). Bibliometric studies outside the information science and library science field: uncontainable or uncontrollable? Scientometrics.

E-mail and affiliation: oleell@bib.sdu.dk. University library of southern Denmark, Odense Denmark,



### The disciplinary identity of subject specialties in the social sciences and humanities

Joshua Eykens, Raf Guns and Tim C. E. Engels

In this study we explore the disciplinary diversity present within subject specialties in the social sciences and humanities. Subject specialties or knowledge communities are operationalized as textually coherent clusters of documents. In order to do so, we make use of textual information on the article level (titles and abstracts) and topic modelling to cluster a multilingual set of roughly 45,000 documents into subject specialties. This set of bibliographic records consists of the metadata of the journal articles, conference proceedings, book chapters, and monographs. The cognitive or disciplinary identity of the specialties is studied in terms of their diversity.

We rely on publication level disciplinary classifications as an output indicator and the organizational affiliation of authors as an input indicator. First, for each cluster of documents we calculate the share of articles per disciplinary category. This proxy of disciplinary concentration or openness gives an idea of the extent to which a specialty is disciplinary or crossdisciplinary in nature. Second, we study the disciplinary diversity of the clusters by calculating the diversity index for journal categories and author affiliations within the clusters.

Variations of these diversity indices are measured over time. The goal is to discover whether some subject specialties are inherently multi- or interdisciplinary in nature. This has implications for research evaluation, as it presents the evaluators with relevant contextual information when assessing the interdisciplinarity of scholarly output for a specific subject specialty.

Keywords: subject specialty, social sciences and humanities, diversity, interdisciplinarity, disciplinary classification

E-mails and affiliation: joshua.eykens@gmail.com; raf.guns@uantwerpen.be; tim.engels@uantwerpen.be. University of Antwerp, ECOOM



# Doathon, an initiative to define collaboratively a roadmap for next generation science, technology and innovation metrics

Alicia Fátima Gómez Sánchez, María Alejandra Tejada Gómez, Ana Heredia, César Pallares, Diego Chavarro, Eloisa Viggiani, amd Salim Chalela

Societal and environmental challenges are shifting the conception about how science is performed and how research is assessed. Globally, initiatives such as Open Science, Responsible Research and Innovation, San Francisco Declaration, and CESAER/EU are expanding the reflection about the responsible use of indicators. However, research assessment is still based mainly on indicators with several limitations, and new models are needed.

Our first objective is to share an initiative started within the Latin-American community to develop a roadmap for a more encompassing, socially, and environmentally relevant agenda for scientometrics and the responsible use of indicators. A Do-a-thon approach was adopted, starting with a survey as the basis for subsequent discussions to be conducted in September as part of Latmétricas 2021. Our second objective is to share this initiative with a wider community to collaboratively explore relevant and useful indicators to assess scientific activities, reward researchers, and support policy decisions.

The analysis of 53 responses show that respondents call for quantitative information to help understand the local impact of research and the broader impact of science on society and the environment. From a managerial perspective, respondents expect indicators to help guide organisations in steering research. Responses show unmet user needs, to be included in a research agenda to make scientometrics more relevant to a diversity of stakeholders. Although motivating, results are preliminary and may be biased by self-selection. However, we consider this exercise a key step to explore ways to bring scientometrics closer to non-academic communities and be more useful to society.

E-mails and Affiliations: Alicia Fátima Gómez Sánchez, TU Wien Bibliothek (Austria). E-Mail <u>alicia.gomez@tuwien.ac.at,</u> María Alejandra Tejada Gómez, Pontificia Universidad Javeriana (Colombia)<u>maria.alejandra.tejada.gomez@gmail.com,</u> Ana Heredia, Scholarly Communication Independent Consultant (Brazil), César Pallares, Asociación Colombiana de Universidades (Colombia), Diego Chavarro, Sociedad Colombiana de Ingeniería Física (Colombia), Eloisa Viggiani, Strategic Consultant Higher Education, Research & Innovation (Brazil), Salim Chalela, Universidad del Rosario (Colombia)



#### Bibliometry as a tool for oligonucleotide design

Martha L. Hincapié-López<sup>1\*</sup>, Efrén Romero-Riaño<sup>2\*</sup>, Y. Vladimir Pabón-Martínez<sup>3\*</sup>

Scientometrics studies in the field of Medical Sciences in Gene Therapy related to the design of small molecules, such as oligonucleotides (ONs), are still in an early stage. It is challenging to identify genuine changes in this research field. Indeed, some studies have developed human-centred analysis methodologies. However, systemic reviews in ONs design using Scientometrics or Bibliometrics methodologies are difficult to find. This study aims to trace the production of scientific documents on the computational design of ONs with the ability to form triplexes (TFOs) with their target sequence. TFOs are small molecules with the potential to become therapeutic tools as an antigenic strategy in Gene Therapy. For this reason, an analysis of publications was carried out, including 2618 original peer-reviewed articles (cited 57436 times) from the Scopus database between the years 1980 to 2021 in this research field. The analysis excludes publications such as reviews, books, and methods.

The results revealed a universe of 43305 terms, 1738 of which has an occurrence threshold of 85 times. Further, the key terms were cluster as i) Characteristics of therapeutic tools, ii) Target genome sequence and, iii) Computational tools. The TFO term had a co-occurrence as a hotspot within emerging trend terms in research related

to the computational design of ONs research.

In the next few years, Bibliometrics studies could contribute to better design oligonucleotides for medical purposes.

Keywords: Bibliometry, computational design, oligonucleotides, Triplex forming, VOSvierwer

E-mails and affiliation: 1 mhincapie162@unab.edu.co; 2 eromero21@unab.edu.co, 3 ypabon561@unab.edu.co. Universidad Autónoma de Bucaramanga. Bucaramanga.Colombia



### NORA, National Open Research Analytics

Karen Hytteballe Ibanez, Mogens Sandfær, Søren Willer Hansen

NORA, National Open Research Analytics<sup>\*</sup>, is a national initiative to enable robust and open insights and analytics of Danish research. NORA is focused on national level insights, and thus NORA supplements rather than replaces existing institutional systems, offering deep and detailed insights at various levels inside the institution, and existing global databases and research intelligence systems, offering insights and advanced analytics at the global level.

- Building a data infrastructure collecting and aligning the best data available, from local, national The NORA mission involves: and global sources
- Building analytical and discovery platforms on top of these databases using high-quality and high- integrity tools and concepts
- Keeping the infrastructure open and transparent with regard to data, software and concepts
- Making the infrastructure and services available through the Research Portal Denmark.

NORAs first steps and future plans will be highlighted in the poster. The poster will be supplemented with demo of the current version of Research Portal Denmark.

\*NORA is financed by the Danish Ministry of Higher Education and Science.

Emails and affiliation: kshi@dtu.dk; mosa@dtu.dk; sowiha@dtu.dk. NORA Team DTU



#### Making the library the center for Bibliometrics and Research Data Management

Asger V. Larsen and Evgenios Vlachos

On April 1st, 2021 the Center for Research Data (CRD) was established at the University Library of Southern Denmark (SDUB). The centre was a fusion of the two units already servicing the researchers at University of Southern Denmark (SDU): the Research Analytics group working with bibliometrics; and the Research Data Management Support unit. Together the two groups, now united in the new centre, services the university faculty with analyses within the domain of bibliometrics and advices them about any aspects of research data management. CRD is strategically positioned at the library to fit nicely with the rest of the university's service units which are the analytics office, the research and innovation office, the IT department, the faculty research support units, the research ethical committee, the eScience center and SDU's data protection officer. By coordinating our activities with all SDU's service units, we can offer the best possible, coherent, and most relevant service to our researchers.

This poster showcases the work being done at CRD, unfolded mainly in the following two directions.

- Bibliometric analyses for single researchers and research groups. This includes our *Researcher Footprint*<sup>1</sup> that provides a visual overview of the online academic presence of our researchers by retrieving information from databases like Scopus, Web of Science, and Google Scholar.
- Hands on help to researchers on how to handle their data from when they are "born" to when they will be deleted/anonymized or archived. We will present our efforts on assisting researchers with writing a Data Management Plan, as well as on how to estimate research data management costs when applying for funding by following our customized data management costing tool template. Lastly, we will present our contributions to the national efforts on data management including the creation of educational videos<sup>2</sup>, websites<sup>3</sup>, and technical reports<sup>4</sup>.

E-mails and affiliation: avla@bib.sdu.dk, Vlachos@bib.sdu.dk. The University Library of Southern Denmark, Denmark

- <sup>3</sup> How to FAIR, https://www.howtofair.dk
- <sup>4</sup> National Coordination of Data Steward Education in Denmark: Final report to the National Forum for Research Data Management (DM Forum),

https://www.deic.dk/sites/default/files/Data%20Steward%20Education%20in%20Denmark\_0.pdf

<sup>&</sup>lt;sup>1</sup> Template for a "Research Footprint", https://zenodo.org/record/3250552#.YRpe1ogzaUk

<sup>&</sup>lt;sup>2</sup> eLearning course about the importance of good research data management (RDM) https://vidensportal.deic.dk/en/RDMELearn



# Pure and SDUpro – a different way to flash research at the Faculty og Science SDU

Hanne Dahl Mortensen

Before the year 2000 I was asked at by the Institute of Biochemistry and Molecular Biology at the University of Southern Denmark to develop a database, in where all applications for research could be registered and stored. Today this database is called SDUpro.

The database is so to speak building a bridge between the faculties and the Financial Services at SDU.

When I receive an application business cooperation and Impact are registered together with a lot of other information.

It is our Pure office at the library that registerer the researchers' articles and cooperation's with companies listed in articles. In pure, the researcher's research projects can also be listed as well as research activities like conferences, peer review or committee work – this is not done automatically. Press clippings are automatically recorded, but this does not differ between ordinary articles and articles describing Impact in society.

In my office we record both things in Pure, so they appear when the researcher's profile is searched on SDU.dk.

Impact and cooperation's with companies in research projects means a lot to the university but also to the researchers since the time has passed where researchers could live their own lives at the different universities without interacting with the surroundings.

Various people are looking at the researcher's profiles at SDU.dk, and I am very proud to use the information that I have in my database to flash the various cooperation's with companies and impact taking place at the Faculty of Science at SDU in Pure.

E-mail and affiliation: Hdm@sdu.dk. SDU



#### Bibliometrics in the reformed national evaluation in the Czech Republic

Michal Petr and Monika Sieberova

In 2017, the national evaluation methodology in the Czech Republic slowly changed from counting points (evaluation system based on metrics) to the system of five modules, quantitative and qualitative, which are implemented gradually. The bibliometrics, as one of those, is used from the very beginning. However, the bibliometrics still has the most significant effect on public funding. Four years later, it is possible to weigh up the relevance, outcomes, and systemic effects of the bibliometric part of the evaluation. In the poster, we disentangle the overall methodology and show the most important and controversial features of the system.

Foremost, the bibliometric module focuses on showing the performance of disciplines in the Frascati classification system. Performance is represented by the Article Influence Score metric produced by Clarivate Analytics and is defined solely on the research outputs indexed on the Web of Science. As the metrics is perceived as a quality sign and the result of the evaluation strongly influences the core budget for research, we discuss the problems of the interpretation at the level of the university organization (discipline-based communities). Then we focus on social sciences and humanities that are exposed to the same metric-based approach. The presented example of the Frascati FORD "History and archaeology" shows how the method may contribute to gaining certain impressions about the performance of (especially SSH) disciplines at the level of the whole country. We discuss to what extent this interpretation is valid and relevant for research evaluation at different levels and for the core budgeting of research.

E-mails and affiliation: petr@rect.muni.cz; sieberova@rect.muni.cz. Masaryk University



## How to map the societal impact of research in the social sciences and humanities? An exploration of the use of libcitations with local libraries

Eline Vandewalle

We explore the possibility of using *libcitations* or *library holding counts* to measure the distribution of monographs in academic and public libraries. Libcitations are a form of altmetrics (or alternative metrics), but contrary to altmetric measures that focus on e.g. social media mentions, libcitations cannot easily be 'gamed' or manipulated. Moreover, libcitations cater specifically to the more book- intensive fields in the social sciences and humanities and can thus be a useful tool for the evaluation of books in those disciplines. However, the use of electronic books could confound the results of libcitation scores.

We study the spread of Flemish monographs from the social sciences and humanities in local public libraries and academic libraries. While previous studies have relied mostly on data from OCLC's WorldCat, we use both data from academic libraries and non-academic libraries to investigate the distribution of monographs to different audiences. In this poster presentation, we present a first version of the results regarding the distribution of Flemish social sciences and humanities monographs in local public libraries. We use the typology for monographs conceived by Sīle et al. (2021), dividing monographs along the lines of globally visible and globally invisible, multi-expression and single- expression works.

E-mail and afflilation: eline.vandewalle@uantwerpen.be; Centre for R&D Monitoring (ECOOM), Faculty of Social Sciences, University of Antwerp, Middelheimlaan 1, Antwerp, 2020 (Belgium)

#### Reference:

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