# 23rd Nordic Workshop on Bibliometrics and Research Policy 2018

Book of abstracts

Editors:
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NORDIC WORKSHOP ON BIBLIOMETRICS AND RESEARCH POLICY, BORÅS 7-9 NOVEMBER 2018

| PRE-WORKSHOP WEDNESDAY NOVEMBER 7th | |
|---|---|
| **12:00-13:00** | **Registration** (Building J) |
| **13:00-13:15** | **Welcome** (Sparbankssalen, building M) |
| **13:15-14:15** | **Keynote**<br>Chair: Björn Hammarfelt<br>*Libraries and bibliometrics: institutional and professional perspectives*, Fredrik Åström, Lund University. |
| **14:15-15.00** | **Bibliometrics in the library: Practice**<br>Chair: Marco Schirone |
| | *Applying the Leiden Manifesto principles in practice – commonalities and differences in interpretation,* Lorna Wildgaard, Marianne Gauffriau, Heidi Holst Madsen, Copenhagen University Library, The Danish Royal Library |
| | *Performance measurements influence on medical scientists' career strategies,* Dorte Henriksen, Bertil F. Dorch, Evgenios Vlachos, Daniella Bayle Deutz and Charlotte Wien, University Library of Southern Denmark |
| **15:15-15:45** | **Coffee** |
| **15:45-17:45** | **Bibliometrics in the library: Solutions**<br>Chair: Marianne Gauffriau |
| | *Further discovering Topics of Prominence – some applied examples*, Floortje Flippo, Elsevier |
| | *Expanding Open Access discovery and growing the citation universe; reflections upon ESCI*, Lea Lipitakis, Clarivate Analytics |
| | *Clinical impact - explore the science behind health care practice*, Magnus Eriksson, Minso Solutions |
| | *From numbers to narratives, from metrics to meaning*, Mike Taylor, Digital Science |
| **18:00** | **Reception** (Room C430, entrance building A)<br>Hosted by the Swedish School of Library and Information Science (SSLIS) |

| THURSDAY NOVEMBER 8th | |
|---|---|
| **08:30-09:00** | **Registration** (Building J) |
| **09:00-09:30** | **Opening of the main conference** (Sparbankssalen, building M)<br>Welcome address by Vice-Chancellor Björn Brorström |
| **09:30-10:30** | **Keynote**<br>Chair: Gustaf Nelhans<br>*Open Science and its discontents*, Merle Jacob, Lund University |
| **10:30-11.00** | **Coffee break** |
| **11:00-12:00** | **Session 1: Peer review**<br>Chair: Dorte Henriksen |
| | *Is it a peer-review label? Presenting reviewers' names in scholarly books in Poland*, Emanuel Kulczycki, Adam Mickiewicz, University in Poznań |
| | *Journal Peer Review: cautious innovation or sleepy giant?* Serge Horbach, Leiden University |
| | *The Usefulness of Quality Criteria for Research Policy*, Michael Ochsner, ETH Zurich |
| **12:00-14:00** | **Lunch** (*Restaurant Balder,* Building A) & **Poster session** (Building J) |
| **14:00-15:00** | **Session 2: Open access and altmetrics**<br>Chair: Helena Francke |
| | *Bibliometric and altmetric analysis of visibility of publications in social sciences*, Daniela De Filippo (Elías Sanz-Casado), Carlos III University |
| | *Open access and the Nordic publication indicator: friends or enemies?* Janne Pölönen, Federation of Finnish Learned Societies |
| | *Does Data Sharing Influence Data Reuse in Biodiversity? A Citation Analysis,* Nushrat Khan, University of Wolverhampton |
| **15:00-15:30** | **Coffee break** |
| **15:30-16:30** | **Session 3: Research evaluation**<br>Chair: Tahereh Dehdarirad |
| | *The Evaluation of Swedish Medical Research Centres: Outputs and Impacts,* Grant Lewison, King's College London |
| | *Evaluating computer science: challenges and solutions,* Eva Isaksson, Helsinki University Library |
| | *The academic impact of Nordic research in top international journals,* Cynthia Lipitakis, Clarivate Analytics |

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|---|---|
| **18:30** | Workshop dinner at Restaurant *The Company* (Building U) |

| FRIDAY NOVEMBER 9th | |
|---|---|
| **08:30-09:00** | **Registration** (Building J) |
| **09:00-10:00** | **Session 4: Research policy** (Sparbankssalen, building M)<br>Chair: Gunnar Sivertsen |
| | *Has the 2008 Global Financial Crisis a lasting impact on universities and public research institutes in the European Union?* Marc Luwel, Leiden University |
| | *Promoting research collaboration with high potential,* Hans Pohl, Swedish Foundation for International Cooperation in Research and Higher Education (STINT) |
| | *Expert panel composition in research evaluation: a comparison between Web of Science and Scopus driven data*, A.I.M. Jakaria Rahman, Chalmers University of Technology |
| **10:00-10.30** | **Coffee break** |
| **10:30-11:15** | **Session 5: Gender perspectives**<br>Chair: Camilla Linderlöw |
| | *Female scholars' contribution to research topics in microbiology (2012-2016) and its relationship with the Gross Domestic Product (GDP) index*, Tahereh Dehdarirad, Chalmers University of Technology |
| | *Gender gaps in international research collaboration. A bibliometric approach*, Dag W. Aksnes, NIFU |
| **11.15-12.15** | **Poster-minute-madness**<br>Chair: Björn Hammarfelt |
| **12:15-13:30** | **Lunch** (Restaurant Balder Building A) |
| **13:30-14:30** | **Session 6: Publication patterns**<br>Chair: Michael Ochsner |
| | *Can an academia reward system change publication habits? The case of University Carlos III of Madrid*, Núria Bautista-Puig, Carlos III University of Madrid |
| | *The role of learned societies in scholarly publishing in Finland*, Elina Late, University of Tampere |
| | *Preliminary results of the publishing practices of a multidisciplinary research field in the subdisciplinary level – case Pharmacy*, Terhi Sandgren, University of Tampere |
| **14:30-15:00** | **Closing and announcement of NWB'2019 venue** |

| POSTERS |
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| *The importance of scientific references in their contexts,* Johan Eklund, University of Borås |
| *Author perspectives on research visibility and impact*, Helena Francke, University of Borås, Camilla Lindelöw, National Library of Sweden, Lisa Olsson, Stockholm University |
| *Methodological frameworks for counting methods in bibliometrics*, Marianne Gauffriau, Copenhagen University |
| *Discussing research on Twitter: Measuring the conversational impact of scientific publications*, David Gunnarsson Lorentzen, University Borås |
| *Article based dissertation, a springboard to success?* Leena Huiku, Anna-Kaisa Hyrkkänen, Irma Pasanen, Aalto University |
| *Measuring knowledge mobilization for Nordic research using patent and policy indicators*, Stacy Konkiel, Mike Taylor, Digital Science |
| *Questionable publishing in Swedish academia*, Gustaf Nelhans, University of Borås, Theo Bodin, Karolinska Institutet |
| *OPERA - Open Research Analytics*, Mogens Sandfær, Karen Hytteballe Ibanez, Christina Steensboe, Nikoline Dohm Lauridsen, Technical University of Denmark, David Budtz, Birger Larsen, Aalborg University, Poul Melchiorsen, Aalborg University Library |
| *The role of Google Scholar Alerts (GSA) in scientific communication: is there any correlation between altmetric indicators and GSA?* Witold Sygocki, Central Institute for Labour Protection-National Research Institute, Małgorzata Rychlik, Poznan Univeristy Library, Poland |

# Pre-Workshop

# Applying the Leiden Manifesto Principles in Practice – Commonalities and Differences in Interpretation

**Lorna Wildgaard**

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The Leiden Manifesto (LM) is changing how we think about and use metrics [1]. Bibliometric evaluation is explained as a combination of quantitative and qualitative methods, allowing the use of different metrics, disciplinary knowledge and research performance strategies. Both bibliometricians and consumers of bibliometrics are encouraged to communicate and use the LM principles to acknowledge what they know and do not know, what is measured and what is not measured, thus legitimizing the use of the metrics.

However, in our previous study, we observed that it is unclear how the LM principles should be interpreted [2, 3]. We suspect that subjective interpretations of the principles do not correlate. To investigate the reliability and validity of the LM, the present study presents a systematic review of bibliometric reports that apply the LM principles. Reports are retrieved from the LM blog [4], Scopus, Web of Science and Google Scholar. Each principle and its interpretation is coded in NVivo, whereafter we explore the degree of agreement in the interpretations across the reports.

We find that for some principles, e.g. principle 1, the interpretations are well aligned. For other principles, e.g. principle 3, the interpretations differ but may be seen as complementary. We also observe that interpretations can overlap and thus the redundancy of the principles needs to be further investigated, e.g. principle 3 and 6.

We conclude that at least for some of the LM principles, the reliability appears weak as the range of interpretations are wide, however complementary. Furthermore, some of the interpretations are applied for more principles, which may point to weak validity.

Further research on the reliability and the validity of the LM will be essential to establish guidance in implementing the LM in practice.

## References

1. Hicks, D., Wouters, P., Waltman, L., de Rijcke, S. & Rafols, I. (2015). Bibliometrics: The Leiden Manifesto for Research Metrics. *Nature*,520, 429–431.

2. Madsen, H. H., Wildgaard, L., & Gauffriau, M. (2017). Bottom-up implementation of Leiden Manifesto. I E. Isaksson (red.), *WORKSHOP PROCEEDINGS: 22nd Nordic Workshop on Bibliometrics and Research Policy (NWB'2017)* University of Helsinki.

3. Madsen, H. H., Wildgaard, L., & Gauffriau, M. (2017). Consumer labels for bibliometric analyses based on Leiden Manifesto. *Leiden Manifesto for Research Metrics – Blog,* Available at: http://www.leidenmanifesto.org/blog/consumer-labels-for-bibliometric-analyses-based-on-leiden-manifesto(Accessed: 14th August 2018)

4. Leiden Manifesto for Research Metrics, [blog]: http://www.leidenmanifesto.org/blog(Accessed: 14th August 2018)

# Performance Measurements Influence on Medical Scientists' Career Strategies

**Dorte Henriksen**
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The most infamous author-level performance indicator in academia is the h-index. Hirsch (2005) created it to measure both the productivity and the citation impact of a researcher's scholarly publications. The index quickly became one of the most popular indicators among researchers and policymakers since it is a relatively simple measure of research performance. However, a simple measure cannot incorporate the entire complexity of scholarly communication, or of the profile of an academic career.

This study differs previous studies examining and discussing the h-index, criticizing its merits, and/or suggesting alternative measures. We accept the existence, and use of the h-index, but are critical towards it being used as an impact indicator on its own. The study focuses on how individual researchers can in principle strategically optimize their own h-index, and on the strategies used by such "high h-index researchers".

The study uses publication data about 75 medical researchers to identify the researchers as either high h-index researchers, or low h-index researchers and to select relevant interviewees. The interviews focus on the researchers' career and their respective publication strategies (if any). Indications are that the high h-index researchers reflect on their performance measures, and work strategically with increasing their own performance in accordance with such measures, while the low h-index researchers are less conscious about such measures. Our study describes the differences between the two groups and discusses the implications of our findings.

# Session 1

# *Peer Review*

# Is it a Peer-Review Label? Presenting Reviewers' Names in Scholarly Books in Poland

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Peer-review label serves to mark out the peer-reviewed books and articles by publishers. Such labels are used among others in Finland and Flanders (Belgium) where procedures of labelling are formalized. A label on the book means that a book was peer-reviewed and a peer-review was controlled by a publisher which archived the documentation of this process.

In this study, we aim to investigate whether presenting the book reviewers' names on the editorial pages is a form of peer-review label. A practice of exposing names of referees is very common in the Central and Eastern European countries. To achieve the aim, we have investigated how 20 biggest Polish academic book publishers accept manuscripts for publication.

We have conducted a mixed-method sequential explanatory study, consisting of 20 semi-structured interviews with the head of publishing houses and two surveys addressed to 600 authors and over 800 reviewers of the monographs published by these publishers. This triangulation allows us to investigate publishers' perspectives on their own practices and to verify publishers' claims on conducted peer-review and actual evaluation practices.

Our findings show that presenting the reviewers' names is actual confirmation that the peer review was conducted, reviewers were experts in the fields, the authors received the reviews, and the documentation of the peer review was archived. The majority of the publishers did not ask reviewers whether their names can be exposed. They assumed that it is a common practice known to authors, reviewers, and publishers. Our analysis reveals that the Polish practice is largely consistent with Finnish and Flemish regulations.

# Journal Peer Review: Cautious Innovation or Sleepy Giant?

**Serge Horbach**

Radboud University (Institute for Science in Society) & Leiden University (Centre for Science and Technology Studies)

**Willem Halffman**

Radboud University (Institute for Science in Society)

Peer reviewed journal articles are one of the most important dissemination mechanism for researchers in nearly all fields of research. Peer reviewed articles also increasingly form the basis for evaluation of personal and organisational success. In this process, peer review plays a crucial role in selecting, redirecting and improving manuscripts. Given its importance, it is no surprise that peer review practices have been questioned and scrutinised. In response, innovations have been suggested or are being tried out, making journal peer review a set of surprisingly varied practices. However, research on the diffusion and effects of these innovations is rather limited.

We studied peer review practices among a wide range of journals. Our research describes and systematises current forms of peer review, in what kind of journals they are used, and how and why journals innovate their review practices. We also assessed to what extent these different forms are able to filter out problematic research by relating peer review forms to retraction rates.

We conclude that, even though there are good reasons to innovate, implementation of novel review forms is in fact very slow. With some exceptions, the peer review forms prevalent two decades ago are still mainstream today. In addition, in spite of peer review's diversity, we observe surprisingly little differences between research fields. Considering that some review forms seem to be more capable of filtering out problematic research, our research offers suggestions for journal peer review improvement to editors and publishers.

# The Usefulness of Quality Criteria for Research Policy

**Michael Ochsner**

**Mišo Dokmanović**

**Aldis Gedutis**

**Emanuel Kulczycki**

**Sven E. Hug**

In the knowledge society, universities, and research, in general, take an increasingly important role. Research is expected to address directly societal challenges. Many of these challenges differ widely across countries and regions, especially so in the social sciences and humanities (SSH). Research is, therefore, context-dependent and universities and research institutions play different roles and follow different missions (Hasgall, Lanarès, Marion & Bregy, 2018). This has an impact on research policy and on research evaluation.

Consequently, there is a wide variety of how research evaluation is conducted across Europe (Ochsner, Gedutis & Kulczycki, 2018). In our presentation, we offer a link between different on-going research projects on research quality and research evaluation with a focus on the social sciences and humanities. First, we present quality criteria for SSH research and how such criteria differ (or not) between disciplines and evaluation situations. Second, we present differences in how SSH research is evaluated in European countries. Combining the two strands of research, we conclude by pointing out how knowledge about quality criteria can help in designing evaluation procedures and linking evaluation to research policy.

# Session 1

# *Open Access & Altmetrics*

# Bibliometric and Altmetric Analysis of Visibility of Publications in Social Sciences

**Daniela De Filippo**
INAECU (Research Institute for Higher Education and Science) Carlos III University of Madrid, Spain

**Elías Sanz-Casado**[1,2]
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& LEMI (Laboratory on Metric Information Studies), Department of Library and Information Science, Carlos III University of Madrid, Spain

Considering that the production and dissemination of research knowledge in social sciences and humanities differ from that in other fields, studying their profiles of activity will contribute to proposing new ways to improve their visibility.

In this line, the principal aims of this study are

-identify scientific publications of international prestige in four social sciences research areas: economics, sociology, environmental science and communication.

-detect patterns of scientific activity in each discipline from bibliometric indicators that measure activity, collaboration, impact and visibility.

-gather and analyse the mentions of papers in the social media using altmetric indicators.

-ascertain the possible existence of relationships between scientific impact and social reaction.

A total of 123316 papers published from 2013 to 2015 in the four disciplines was retrieved from the Social Science Citation Index. Economics accounted for the largest number and have a 'stable' and consolidated output profile. Environmental science proved to be the most 'international' of the disciplines analysed. A relationship was found between collaboration and impact/visibility in all four disciplines. The proportion of papers with mentions in the social media was around 50% in three of the four disciplines, suggesting a relationship between the object of study and the medium for disseminating the findings. Tweets were the most common type of mentions. The percentage of papers and the mean number of citations per paper were greater among those WITH than those WITHOUT mentions in the social media and the same happens with the documents in Open Access.

# Open Access and the Nordic Publication Indicator: Friends or Enemies?

**Janne Pölönen**

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DORA, the Leiden manifesto, and the Metric Tide report promote responsible use of research metrics in research evaluation. This includes not ceding decision-making to numbers, and not using journal-based metrics as a proxy for research quality. These principles are endorsed by European Commission, LERU, and EUA in recently published open science recommendations and roadmaps. Incentives reinforcing the dominant position of commercial academic publishers is also a relevant concern.

In Denmark, Finland and Norway, the performance-based research funding systems (PRFS) use a channel-based publication indicator to allocate part of the block-funding annually to universities (so-called Norwegian model). In this presentation we discuss from the perspective of the Nordic publication indicator (NPI) three questions related to the responsible metrics and open science agenda:

1. does NPI advance open access?

- dissemination of OA information
- inclusion of OA journals at level 1
- effort to exclude questionable OA
- promoting OA journals to level 2 and 3
- OA in the funding formula?

2. does NPI conform to responsible metrics?

- data and analysis simple, transparent and controllable
- promotion of locally relevant research
- consideration of field variation in publishing
- avoids misplaced accuracy
- recognizing systemic effects
- indicator is scrutinized and updated

3. is it responsible to use channel as proxy in NPI?

- rating is not based on publisher
- expert-based rather than JIF-based rating
- use at macro level
- funding-scheme vs research assessment
- guidelines against use at individual level

# Does Data Sharing Influence Data Reuse in Biodiversity? A Citation Analysis

**Nushrat Khan**
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**Mike Thelwall**
University of Wolverhampton

**Kayvan Kousha**
University of Wolverhampton

Making research data openly accessible promotes reproducibility in science. Previous studies have suggested that articles that publicly share research data have higher citation rates in biological and social sciences.

However, information about how and whether data is reused is not often openly accessible from research data repositories. This study focuses on Biodiversity datasets published on Global Biodiversity Information Facility (GBIF) because there is frequent reuse of research data in this field. GBIF was used as a data source since it provides citation count for datasets, not a commonly available feature for most repositories. Metadata from 38,878 datasets were collected through the GBIF API.

The data shows that biodiversity datasets on GBIF are frequently updated, which is unusual for research data. Analysis of dataset types, citation counts, creation and update time of datasets suggests that citation rates vary for different types of datasets. 'Occurrence' datasets that have more granular information have higher citation rates than checklist and metadata-only datasets. Correlation tests also suggest that more frequently updated datasets tend to receive more citations. An analysis of the number of occurrence datasets published between 2007-2018 and the number of citations received indicate that, similarly to articles, it takes 2-3 years to accrue most citations for datasets.

Furthermore, an analysis of dataset title texts suggests that datasets about some regions, including China, Brazil, Atlantic, Australia and India, appear more frequently than others. The results are suggestive that data reuse and data citation are common in Biodiversity, and that more enriched and regularly maintained datasets attract more citations. Therefore, including citation counts for datasets in repositories can help to reveal how data citation practices differ in various fields and whether citation evidence can be used to promote the impact of research data.

***Keywords:*** *Biodiversity, Data citation, Data reuse, Research data sharing.*

# Session 3
# *Research Evaluation*

# The Evaluation of Swedish Medical Research Centres: Outputs and Impacts

**Grant Lewison**

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We examined the research papers from eight Swedish geographical areas containing medical schools and universities, plus government labs and industry, in 2002-13 and in five non-communicable diseases (NCDs), as part of a European project on the mapping of NCD research. Their funding sources from 2009-13, and their citations in other Web of Science (WoS) papers were determined. Their contribution to the evidence base of European clinical practice guidelines (CPGs), and their citation in European newspaper stories about medical research provided alternative measures of their importance which better showed their impact in the outside spheres of healthcare provision and public information. Our results showed that companies were very strong in respiratory diseases, and relatively so in the other NCDs except for cancer. The geographical centres all averaged about 50% funding from the Swedish government but varied greatly in their success in attracting support from Swedish charities and foundations, and from industry and the European Commission. In terms of WoS citations, the companies were strong in mental disorders, and the Stockholm centres (mainly the Karolinska Institutet) showed to advantage in cancer and respiratory diseases. Swedish papers in respiratory medicine were frequently cited on CPGs from other European countries, especially ones from companies, and those from Karlstad & Orebro in diabetes. Relatively fewer Swedish papers were cited in non-Swedish European newspapers, except those from government laboratories (other than their papers in respiratory diseases), and from Stockholm, except in cancer.

# Evaluating Computer Science: Challenges and Solutions

**Eva Isaksson**

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**Riku Hakulinen**

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Computer science, with conference articles as the dominant publication type, is a well-known challenge for university administrators and support services from the point of view of evaluation and bibliometric analyses. In the course of our work at Helsinki University Library, we have considered the available bibliometric databases, and also tried them in practice: Web of Science, Scopus, Google Scholar, Microsoft Academic 2.0 and Dimensions.

There is no perfect fit for computer science, as every database has its own problems. We provide a comparison, listing benefits and pitfalls. We also explain why we usually end up with choosing Google Scholar.

For evaluations including statistics from the Finnish Publication Forum classification, the changes announced for conference classification in June 2016 added a further dimension of complexity. For evaluations including publication years before and after this change, the results cannot be described as very transparent.

Can computer science be evaluated by following the principles of the Leiden Manifesto? We think that it is possible, provided that the evaluators let computer scientists have their say in the process. One should, however, be aware, that this process is not necessarily straightforward.

# The Academic Impact of Nordic Research in Top International Journals

**Evangelia Lipitakis**
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In this study, the academic impact of Nordic research is discussed in the context of top international peer-reviewed journals. The share of publications and citation trends of Nordic research in top journals is investigated. The open access publication and citation share in DOAJ and non-DOAJ journals is considered. The journals and top publishers that benefit most from Nordic research (open access/non open access) are identified and an analysis of how Nordic research papers increase the visibility of journals by contributing the highest citation rates is presented. A bibliometric analysis of the top 1% and 10% most highly cited Nordic papers by journal, publisher, research field and Nordic country is presented to highlight the international impact that Nordic papers bring to top peer-reviewed journals and publishers. Also, the research fields in which Nordic research is most impactful when published in multidisciplinary 'mega journals' when compared to the European and international standards are identified.

The aim of this study is to engage and support Nordic researchers, librarians and policymakers through an evidence-based, publisher neutral, open discussion about the current opportunities and challenges of Nordic publication and journal subscription decision making.

***Keywords:*** *Nordic research, Academic impact, Open access, Bibliometric analysis*

# Session 4

# *Research Policy*

# Has the 2008 Global Financial Crisis a lasting impact on universities and public research institutes in the European Union?

**Marc Luwel**

**Thed N. Van Leeuwen**

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2018 marks the 10th anniversary of the 2008 Global Financial Crisis. The Eurozone was confronted with an asymmetric shock, affecting particularly the heavily indebted countries Portugal, Ireland, Greece and Spain. Our study focusses on the impact of the Global Financial Crisis on universities and public research institutes in the above-mentioned countries, the Nordic and Benelux countries, Italy, France and the UK.

Time series analysis methods are used to investigate the relationship:
a) between the GDP and the combined Higher Education Expenditures on R&D (HERD) and Government Expenditures on R&D (GOVERD), and
b) between the combined HERD and GOVERD and the number of Web of Science (WoS) publications, using a full and a fractional counting scheme.

At country level, the total number of WoS publications is used as a proxy for the research capacity of the publicly funded research performing institutes. The period is 1990-2017.

Using the Granger causality test no relationship is found between the evolution of GDP and the combined HERD and GOVERD.

Except for Denmark and the UK (both counting schemes) and Norway and Sweden (full counting scheme), a breakpoint is observed around 2011-2012 in the countries' total number of publications within the most recent years a stagnation or even a decrease. Although based on a limited number of data points, the Chow test shows that for most countries the slope of the regression line before and after the breakpoint differs significantly. This breakpoint cannot be explained by a significant change in the coverage of the WoS and could be a (delayed) effect of the reduction in public funding.

Work is in progress on the causality tests between funding and publication output.

# Promoting Research Collaboration with High Potential

**Hans Pohl**

Swedish Foundation for International Cooperation in Research and Higher Education (STINT) & Cross-Border Education Research Team, State University of New York at Albany

Strategies for the internationalisation of higher education are preferably based on careful analyses of high-quality data. One key question is to identify countries for intensified academic collaboration. This study gives some guidance as it a) highlights countries with relatively high growth in research (quantity and quality of Scopus publications) and b) maps the current collaboration pattern of an entity (a country or a higher education institution). In both cases, new methodologies have been developed to make good use of data.

The study demonstrates that the world map in terms of important research countries is changing rapidly. Economic growth and an increased awareness of knowledge as a driver for national develop-ment have contributed to many countries' swift growth in higher education and research. At the same time, academically established countries rather exhibit a stagnation in their development. Some countries manage to combine a growth in volume with a growth in quality, China is one important example, whereas others have difficulties to develop the quality, among them Indonesia and South Korea.

The collaboration pattern shows that Sweden's research collaboration portfolio only to a very small extent includes countries with high growth in publication volume and quality. For the NWB2018, fur-ther countries' collaboration pattern will be added, as well as a look at how different scientific disci-plines collaborate internationally.

STINT supports policymakers and researchers at all levels. This work will be submitted to a journal and results will also be communicated using other channels.

# Expert Panel Composition in Research Evaluation: A Comparison between Web of Science and Scopus Driven Data

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**Raf Guns**

Centre for R&D Monitoring (ECOOM), Faculty of Social Sciences. University of Antwerp, Antwerp, Belgium

**Tim C.E. Engels**

Centre for R&D Monitoring (ECOOM), Faculty of Social Sciences. University of Antwerp, Antwerp, Belgium

In earlier research, we introduced methods by which the cognitive distance between two sets of publications can be calculated (Rahman, Guns, Rousseau, & Engels, 2017). One method involves determining the barycenters of the publication sets on a journal-based map of science and calculating the distance between them. Among other possible uses, the resulting distances can be used to compose a balanced expert panel for research evaluation.

In this presentation, we investigate to what extent the distances obtained depend on the data source that underlies the map. We use two global maps of science that are based on aggregated journal-journal citations derived from the Web of Science Journal Citation Reports 2012 and derived from Scopus 2012 data (Leydesdorff, de Moya-Anegón, & de Nooy, 2016) respectively. Data are based on the publication profile of four research divisions from the Department of Chemistry of Chalmers University of Technology over a five-year time span (2012–2016) as well the individual publication profiles of all potential panel members up to the year of the research evaluation.

We find that the coverage of Scopus is better than Web of Science for panel members, while this varies for research groups. The correlation between cognitive distances obtained from WoS and those obtained from Scopusis moderate (0.66). The nearest panel member per division matches in only one case. If we take confidence intervals into account, we find 17 matches. Furthermore, the number of potential matches for each group is rather different between the two data sources. We conclude that the use of Web of Science or Scopus can make considerable differences in terms of decision making in research assessment processes.

***Keywords:*** *Research evaluation, Expert panel; Barycenter, Matching research expertise.*

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# Session 5

# *Gender Perspective*

# Female Scholars' Contribution to Research Topics in Microbiology (2012-2016) and Its Relationship with the Gross Domestic Product (GDP) Index

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There is an absolute divergence in Gross Domestic Product (GDP) between developed and developing countries, which has an impact on what they can devote to research. High-income countries allocate more capital to investment and have better infrastructure for research and development (R&D) activities. R&D investment can be linked to academic output. However, in low-income countries, the funding gender gaps are often larger, and women may have less access to financial resources for R&D than in high-income countries. Additionally, as females and male researchers choose different research topics, this has an important impact on their research performance. Therefore, this study has two objectives: First, to study female scholars' contribution to research topics in microbiology. Second, to examine whether there was a relationship between the Gross Domestic Product (GDP) index and the proportion of female authors per paper in the identified topics. The data set of this study comprised 167,874 articles and reviews from 2012 to 2016, which were extracted from the Web of Science Medline. To identify and visualize the topics addressed during the studied period, VOSviewer was used. The construction and visualization of the term map were done based on 5,918 MESH subject headings. GDP (current US$) data was gathered from the World Data Bank website and an average value calculated for the five-year study period (2012-2016) for each paper. Gender API was used in order to detect the gender of authors.

***Keywords****: Female authors, Gross Domestic Product (GDP) index, Microbiology, Topic*

# Gender Gaps in International Research Collaboration. A Bibliometric Approach

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Men and women have been shown to perform differently according to various indicators related to the process of scientific publishing. In particular, women on average tend to be less productive than men in terms of number of publications (e.g. Kyvik & Teigen, 1996; Piro, Aksnes & Rørstad, 2013). In this presentation, we apply a gender perspective on another dimension: international collaboration measured through international co-authorship.

While most previous analyses have been based on Web of Science or Scopus data, this study is based on the bibliographic Cristin database which has a complete coverage of all peer-reviewed scientific and scholarly publication output, including books. The data material consists of almost 55,000 researchers and their publication output during the period 2011-2017, in total 199,000 publications. We analyze the data at an overall level and in terms of the age, gender, and academic positions of the individuals included. Across disciplines, there are large differences in the collaboration rate, and this dimension is also analyzed.

Preliminary results show that 51 per cent of the female researchers were involved in international collaboration measured by co-authorship compared to 60 per cent for men. Thus, our study shows that male researchers more often are involved in international collaboration than their female colleagues. However, as expected there are large differences across domains (Figure 1).

Figure 1. Proportion of researchers involved in international collaboration by domain

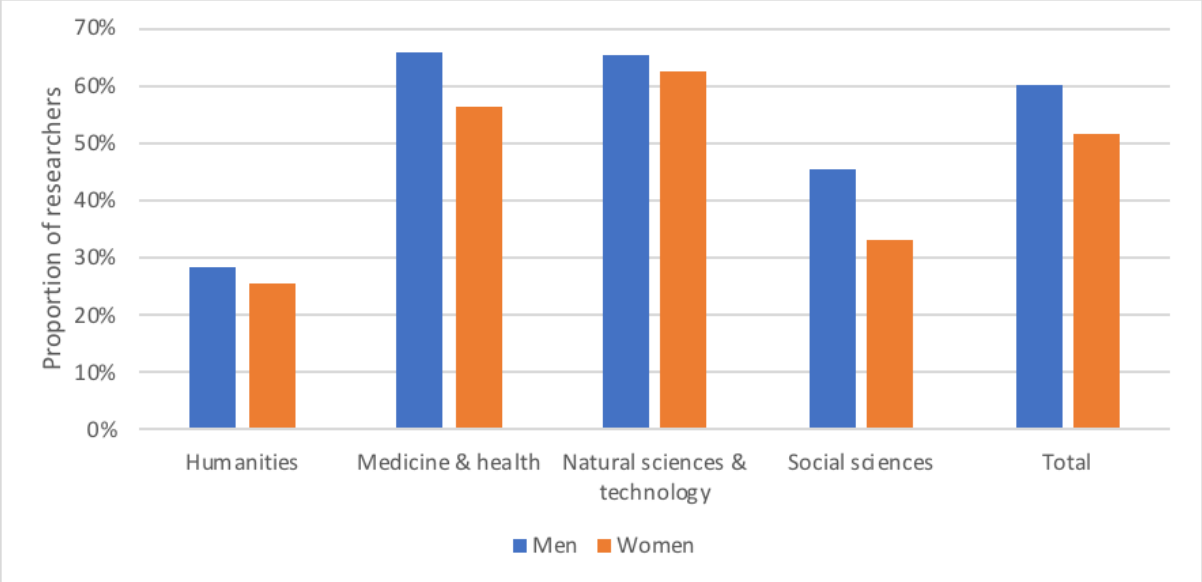
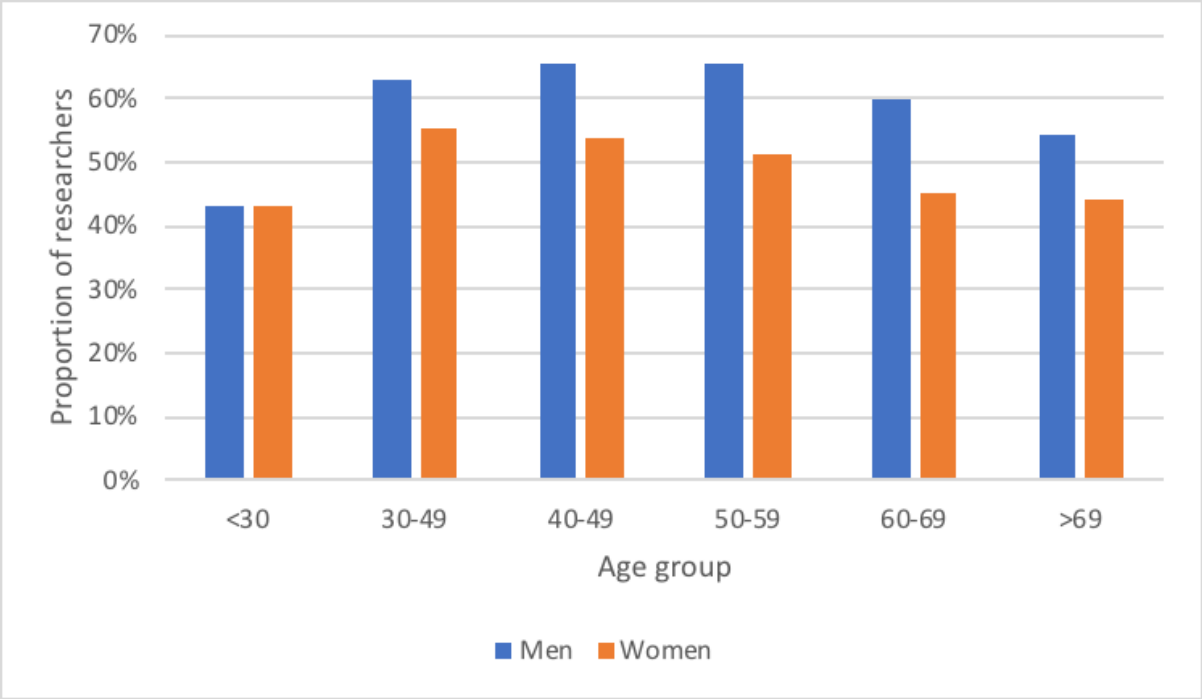


Figure 2. Proportion of researchers involved in international collaboration by age group



# Session 6

# *Publication Patters*

# Can an Academia Reward System Change Publication Habits? The Case of University Carlos III of Madrid

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The effects of economic incentive policies in the research activities have been widely debated in the literature. In this sense, there is a debate about whether the incentives are irrelevant for some groups and even affect negatively, especially if it is perceived as a control/pressure (Andersen & Pallesen, 2008) and, who consider these incentives promote research productivity and the acquisition of other habits such as international collaboration.

The main purpose of this work is to analyze if the introduction of new economic incentives to the researchers affects the increase of the scientific production, impact and visibility of the research. Since 2007, the University Carlos III of Madrid has introduced a new university policy for research activities based on economic rewards in order to improve the scientific output. With that aim, indicators from scientific activity from 2000 to 2016 have been analysed and a mathematical model has been used in order to establish possible scenarios and estimate its prediction.

The preliminary findings point that, despite the stagnation of the number of researchers, the number of papers grew during the period, slightly higher than the simulated scenario without incentives. Notwithstanding, the papers published in the first quartile have considerably grown, denoting that publish journals with a greater impact, thus improving its visibility. Furthermore, an improvement of the internationalization can be observed. The analysis with the different scenarios has determined that these incentives have real positive effects and has lead into a publication habits change of the researchers in this University.

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# The role of Learned Societies in Scholarly Publishing in Finland

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Early scholarly journals were published by learned societies to able scholars to communicate their research findings with other scholars within the field. The distribution of the volumes was based on trades between the societies. After the WWII the status of commercial publishers strengthened. Nowadays the majority of the scholarly journals (also those started by learned societies) are published by commercial publishers such as Elsevier, Springer etc. However, learned societies are still active in promoting their discipline and exchanging and disseminating knowledge especially nationally.

This study presents preliminary results concerning the role of learned societies in scholarly publishing in Finland. Our research results will offer knowledge about the share of learned society journal and book publishers of all Finnish peer-reviewed channels and of the Finnish universities' output published in Finland in years 2011-2017. The role of learned societies is compared with commercial publishers, university presses and other types of scholarly publishers operating in Finland. We also examine the field and share of OA of learned society publications. Quantitative data for the study are collected from publication channel register of Finnish Publication Forum and VIRTA publication information service.

In Finland, there are approximately 300 active learned societies of which more than half publish journals and/or book publications (monographs and edited books). Results show learned societies have a strong role in national scholarly publishing in Finland. There are in Finland a total of 55 peer-reviewed book publishers and 349 journals or book series, of which more than half are published by learned societies. Learned societies provide publication channels also for more than half of the total peer-reviewed output of universities published in Finland. In the presentation, we will show results also concerning the share of open access publications.

# Preliminary Results of the Publishing Practices of a Multidisciplinary Research Field in the Subdisciplinary Level – Case Pharmacy

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My PhD project focuses on publishing practices in different subdisciplines of pharmacy. Pharmacy is a multidisciplinary research field which combines natural sciences, health sciences and social sciences to study drugs and pharmaceutical preparations. There are several subdisciplines in pharmacy e.g. biopharmaceutics, pharmacology, pharmaceutical biology, pharmaceutical chemistry, pharmaceutical technology, industrial pharmacy and social pharmacy.

The research questions are: what kind of publishing practices pharmacy researchers have, are there differences in publication practices between the subdisciplines and does the multidisciplinary nature of pharmacy show in the publishing patterns?

Earlier attempts to study publishing practices in the subdisciplinary level are rare. However, it is important for example in research evaluation to recognize that there can be different publishing practices also within the disciplines. Theories of scientific cultures by Becher (1989) and Whitley (1984) are used as a point of departure for explaining the differences in publishing practices.

Bibliometric analysis of the publications from two Finnish universities pharmacy departments was done in order to test the methods and to have preliminary results. Results and methodological problems, such as how to recognize and define subdisciplines from the data, will be discussed. Preliminary results are reflected with selected aspects of Becher's and Whitley's theories.

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# *Posters*

# The Importance of Scientific References in Their Contexts

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Automatic classification of text documents has traditionally been performed using a bag-of-words representation of document content. This approach involves the removal of contextual information while retaining statistical information on word frequencies. A disadvantage of using traditional machine learning algorithms to this end has been the need for extensive, hand-crafted, feature engineering. The family of machine learning methods collectively known as *deep learning* offer a more sophisticated approach by also automatically extracting and learning the salient features from the training data. Although deep learning networks have primarily shown impressive performance for various computer vision problems, such as the automatic labelling of images, a growing number of studies also propose the use of deep learning algorithms for text categorisation.

In this study, we suggest the use of a recently proposed network architecture called *Hierarchical Attention Networks* (HAN) to explore the occurrence patterns of scientific references in their immediate contexts. Unlike previous approaches, HAN networks utilize the hierarchical structure of documents to assign an attention score to sentences and words in their respective contexts, according to the capacity of single sentences to provide information about the "correct" document categorization, and the capacity of single words to provide information about the "correct" meaning of their containing sentences. In this study, we are primarily interested in investigating the extent to which scientific references tend to appear in "important" contexts, as well as the magnitude of the attention score (i.e. the degree of importance) that the references obtain in their contexts.

# Author Perspectives on Research Visibility and Impact

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The poster will present findings from a survey of 375 corresponding authors whose publications have been published open access as part of the Springer Compact agreement between Bibsam and Springer Nature 2016-2018. In focus is how these authors reason about ways to make their research visible, how/if they themselves try to track the attention gained by the publication, and what they think are good impact measures. The study thus adds to previous work on author attitudes and practices (e.g. Hammarfelt & Haddow, 2018; Tenopir et al., 2016) and can provide some input into the current work in Sweden on how to evaluate and assure high research quality (UKÄ, 2018).

When asked about their arguments for publishing open access, a large proportion of respondents in free-text answers indicated that open access is important because it increases a publication's visibility, access to it, downloads and/or social and scientific impact. Consequently, it is interesting to investigate if open access publishing is the only way in which these authors try to find readers for their publication, or if they take further steps. Answers suggest researchers use general social media, academic networking sites, and more traditional digital channels to share their publications.

Furthermore, the study asked which measures the authors think are the best ones for assessing the impact of their publications, and how they themselves find out how much attention their publications get. The responses will be discussed in terms of traditional metrics, such as JIFs and citations, and altmetrics, such as how documents are accessed or appraised (Haustein et al., 2016) through downloads or shares in social media. They will also be related to more indirect forms of research evaluation, such as peer review and social impact.

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# Methodological Frameworks for Counting Methods in Bibliometrics

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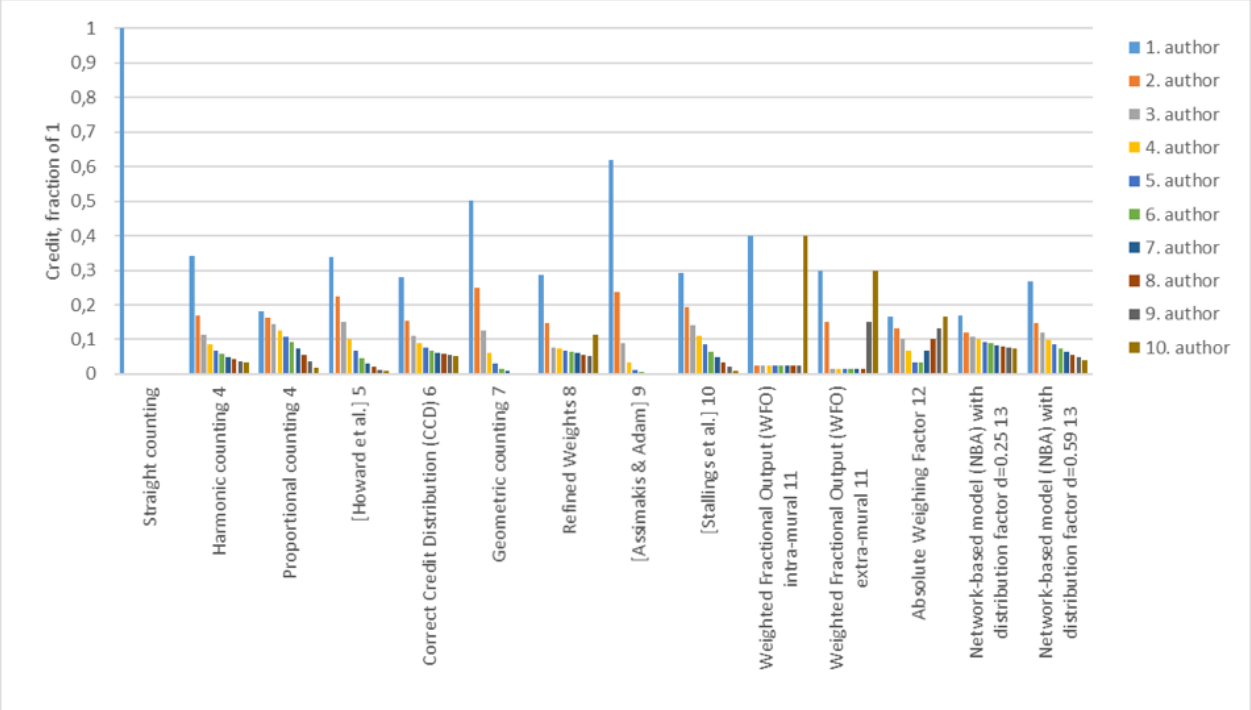
*Introduction*: In many bibliometric studies is it difficult to see how publication and citations are counted, and very few studies justify the choice of counting method[1,2]. This study gives an overview of counting methods. The goal is to facilitate that bibliometric studies report the used counting method and importantly, motivate the choice.

*Method*: The overview of counting methods is based on two methodological frameworks: 1) five mathematical properties used to describe counting methods[3], and 2) four groups of arguments for choosing a counting method[1].

*Selected results*: The methodological frameworks can be used to describe and classify existing counting methods. A class of 14 counting methods[4–13] (Figure 1) meets the mathematical properties that the credit for a publication is 1, and that the rank of an author in a byline determines her/his fraction of the credit. The argument for the 14 counting methods is that they measure the contribution or production of an author.

Figure 1. Rank-dependent and fractionalized counting methods: How authors of a publication with ten authors share the credit.




The study also shows that the argument for the counting method in the Norwegian Publication Indicator[14] differs from most other counting methods. Only one other counting method aims to provide a balanced measure for productivity across research disciplines[15]. Despite overlapping argumentation, the two counting methods differ in construction, as they do not share all mathematical properties.

*Discussion*: The two methodological frameworks facilitate the description of counting methods, and thus have potential to support improved transparency in bibliometric studies. Further research could investigate if counting methods can help us to learn more about what it is we are actually measuring.

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# Discussing Research on Twitter: Measuring the Conversational Impact of Scientific Publications

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References to scientific publications have been studied on Twitter, but less is known about to what extent discussions, or conversations, emanate from the references to the publications. The purpose of this study is twofold. It aims to define a suitable metric for assessing conversation impact of scientific research papers on Twitter as well as to analyse how scientific papers are referred to, discussed and utilised as basis for argumentation in the conversations.

Traditional hashtag and keyword-based methods have the drawback that replies not including these hashtags or keywords are not collected. This has been referred to as follow-on conversation. Similarly, when collecting tweets sent to and from a given set of users, the follow-on conversation is not collected if neither of the users interchanging messages is included in the set of chosen users. In order to collect tweets referring to scientific publications and the follow-on conversation, a composite method was used. This method combines keyword and user tracking, so that tweets matching keywords are collected alongside tweets sent to and from the 2,000 most active users in the dataset at any given time. By tracking the keywords dx.doi.org, arxiv.org, socarxiv.org, Researchgate and academia.edu as well as the most active users emerging in the dataset, 19,933 tweets were collected during two weeks.

The dataset shows clear indications that research is discussed on Twitter. Analysis of the conversations gives context to the different impact metrics.

# Article-Based Dissertation, a Springboard to Success?

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**Irma Pasanen**

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Publishing early and in quantity in one's career has been linked with subsequent publishing success. In recent literature, e.g. the following has been proposed: early success in publishing in high-impact journals is related to later success with individual-level citations (Bornmann and Williams 2017). For junior scholars in natural sciences the higher the number of papers published, the more likely those ended up being amongst the most cited papers in their discipline (Lariviere and Costas 2016)

An article-based doctoral dissertation consists of a set of publications on a related set of problems, and a summary of the findings. Usually, these publications are among the first scholarly articles authored by the students. The articles included in the doctoral dissertation are published or submitted for publication in a high level acknowledged peer-reviewed forum in the discipline (for example a scientific publication series, conference proceedings or other work). Articles not yet accepted for publication can also be included in the doctoral dissertation.

The poster will explore the quality and quantity of articles published as part of a dissertation by junior researchers. The poster focuses on the 1007 article based doctoral dissertations of Aalto University covering the period 2013-2017. Here some 5400 articles authored by doctoral students in conjunction with their thesis are under scrutiny and analyzed with bibliometric indicators. The results will be presented on the level of the schools, namely the School of Arts, Design and Architecture, School of Business, School of Chemical Engineering, School of Electrical Engineering, School of Engineering, and School of Science.

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# Measuring Knowledge Mobilization for Nordic Research Using Patent and Policy Indicators

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**Terry Bucknell**

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Over the years, knowledge mobilization has been measured via patent filings and non-patent citation analysis, and more recently through analysis of citations to research in government and NGO-issued public policy documents. From this basis, we examine recent knowledge mobilization patterns for research published in Denmark, Finland, Iceland, Norway and Sweden from 2015-2017. We identify national and disciplinary trends in research productivity and collaboration using grants and publication data from Dimensions, and compare these trends to non-patent and public policy citations to research, as well as patent filings. We offer a comparative analysis to identify areas of opportunity for growth in national research policy and planning.

# Questionable Publishing in Swedish Academia

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AIM:

This study aims at examining the amount, distribution, and share of questionable Swedish HEI journal publishing by matching it against available blacklists of so-called "predatory" publication channels.

MATERIAL AND METHODS

Journal publication data for all Swedish HEI:s was extracted from the SwePub database. We (text-)matched it against three formal blacklists of questionable publishing consisting of a curated blacklist maintained by the Ministry of Health and Medical Education in Iran (Iran MHME), 2,180 titles, the DOAJ list of journals removed from the Open Access list based on "Suggested editorial misconduct", (642 titles), and verified against the so-called Cabell's Blacklist, (9,562 titles) by kind permission. All data was manually vetted to ensure that false positives (e.g. homonyms) were not included.

RESULTS

In the analysis for the six-year period 2012-2017, we identified 1,849 published journal articles (full count, 1,201.6 fractionalized author shares) that matched with the blacklists. The total share of matched publications ranged between 0.5 and 0.9 % at a yearly rate with a slightly decreasing ($r^2$=0.82) trend during the time period. The share between different HEI categories was quite varied, with "older universities" and special universities" having a median of about 0.6 % matched author shares and "newer universities" and university colleges having a share of about 2 % matched author shares of the total amount of journal publishing from the organisation type.

DISCUSSION

While blacklists in themselves have been questioned and are hard to validate using exact criteria, they nevertheless provide a starting point to evaluate the extent of the situation. The blacklists coverage differed quite extensively and only two of the lists included criteria for listing journal titles (DOAJ and Cabell's). Cabell's list has an extensive number of 64 different criteria (such as "no editor or editorial board listed", or "using misleading metrics"), and a manual analysis of the contents of journal's web pages for the titles matched with the acquired blacklists seems to validate their inclusions in the analysis. As a next step, a broader analysis of all Nordic countries is presently in progress.

# OPERA - Open Research Analytics

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In 2018 the Danish project; Open Research Analytics —OPERA—was launched. OPERA is supported by Danish funder DEFF and runs for two years. The project aims at establishing open and advanced research analysis systems at Danish universities and in the wider Danish landscape around the universities.

OPERA brings together leading Danish actors with global operators and experts including Technical University of Denmark, Aalborg University, Aarhus University, Copenhagen University, Cornell University, TU Delft, German National Library of Science and Technology and CWTS Leiden.

OPERA will address a wide range of challenges for research analysis:

• GOOD GLOBAL DATA: Obtaining and consolidating the best global citations data
• SSH INCLUDED: Providing adequate documentation for research in the humanities and social sciences and relevance of research in the humanities and social sciences
• NEW TOOLS & CONCEPTS: Customizing and using innovative analysis and visualization tools
• OPEN SYSTEM: An open source system, directed and controlled by Danish stakeholders
• OPEN SCIENCE: Better recognition of Open Science contributions in metrics and evaluation

The poster will present work in progress, methods and approaches of the various work packages within the OPERA project.

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# The role of Google Scholar Alerts (GSA) in Scientific Communication: is There Any Correlation between Altmetric Indicators and GSA?

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**Małgorzata Rychlik**

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The aim of this study was to examine whether Google Scholar Alerts (GSA) have a significance for scientific communication.

The study was divided into two stages. The first stage was to collect GSA records representing OSH discipline (N=400). GSA were related to articles published in two journals: *International Journal of Occupational Safety* and *Ergonomics and Applied Ergonomics* which are indexed eg. in Scopus. All articles had DOI assigned. The chronological scope of the study covered December 2016 and 2017. The second stage involved the use of the Altmetric Explorer (http://www.altmeric.com) to check whether the journals having more GSA had more altmetric indicators and whether Twitter mentions and Mendeley readers correlated with GSA.

Based on the obtained data, the authors will try to answer the following questions:

RQ1. Which journal has more GSA?

RQ2. How many GSA are non-active?

RQ3. Does a journal having more GSA have more altmetric indicators?

RQ4. Does the number of GSA assigned to a particular article correlate with the number of altmetric indicators?

RQ5. What, if any, is a significance of GSA in scientific communication?

All analyses were done in September 2018.
It is a preliminary research. The authors plan to broaden its range.