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3.	Tracing the role of individual journals in a cross-citation network based on different indicators	By: Zhang Lin , Glanzel, Wolfgang, Liang, Liming SCIENTOMETRICS Volume 61 Issue 3 Pages: 621-638 Published: DEC 2009 oria.no Full Text from Publisher View Abstract	Times Cited: 22 (from Web of Science Core Collection)	Usage Count	
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5.	The diffusion of H-related literature	By: Zhang Lin , Fritz, Bart, Glanzel, Wolfgang JOURNAL OF INFORMETRICS Volume 5 Issue 4 Pages: 583-593 Published: OCT 2011 oria.no View Abstract	Times Cited: 18 (from Web of Science Core Collection)	Usage Count	
6.	Betweenness centrality and Q-measures in directed valued networks	By: Rousseau, Ronald, Zhang Lin SCIENTOMETRICS Volume 75 Issue 3 Pages: 575-590 Published: JUN 2008 oria.no Full Text from Publisher View Abstract	Times Cited: 14 (from Web of Science Core Collection)	Usage Count	
7.	Journal cross-citation analysis for validation and improvement of journal-based subject classification in bibliometric research	By: Zhang Lin , Janssens, Fritz, Liang, Liming, et al. SCIENTOMETRICS Volume 82 Issue 3 Pages: 687-706 Published: MAR 2010 oria.no Full Text from Publisher View Abstract	Times Cited: 13 (from Web of Science Core Collection)	Usage Count	

European experiences with national research evaluation systems

International Symposium on Research Evaluation, Rabat, 6-7 December 2017

Gunnar Sivertsen

Nordic Institute for Studies in Innovation, Research and Education, Oslo, Norway

NIFU

Outline

1. Definitions

- National research evaluation systems
- Performance-based institutional funding systems

2. A typology:

- Four types: United Kingdom, Sweden, Norway, the Netherlands
- More examples: Belgium (Flanders), Croatia, Czech Republic, Denmark, Finland, Italy, Portugal

3. Experience-based advice:

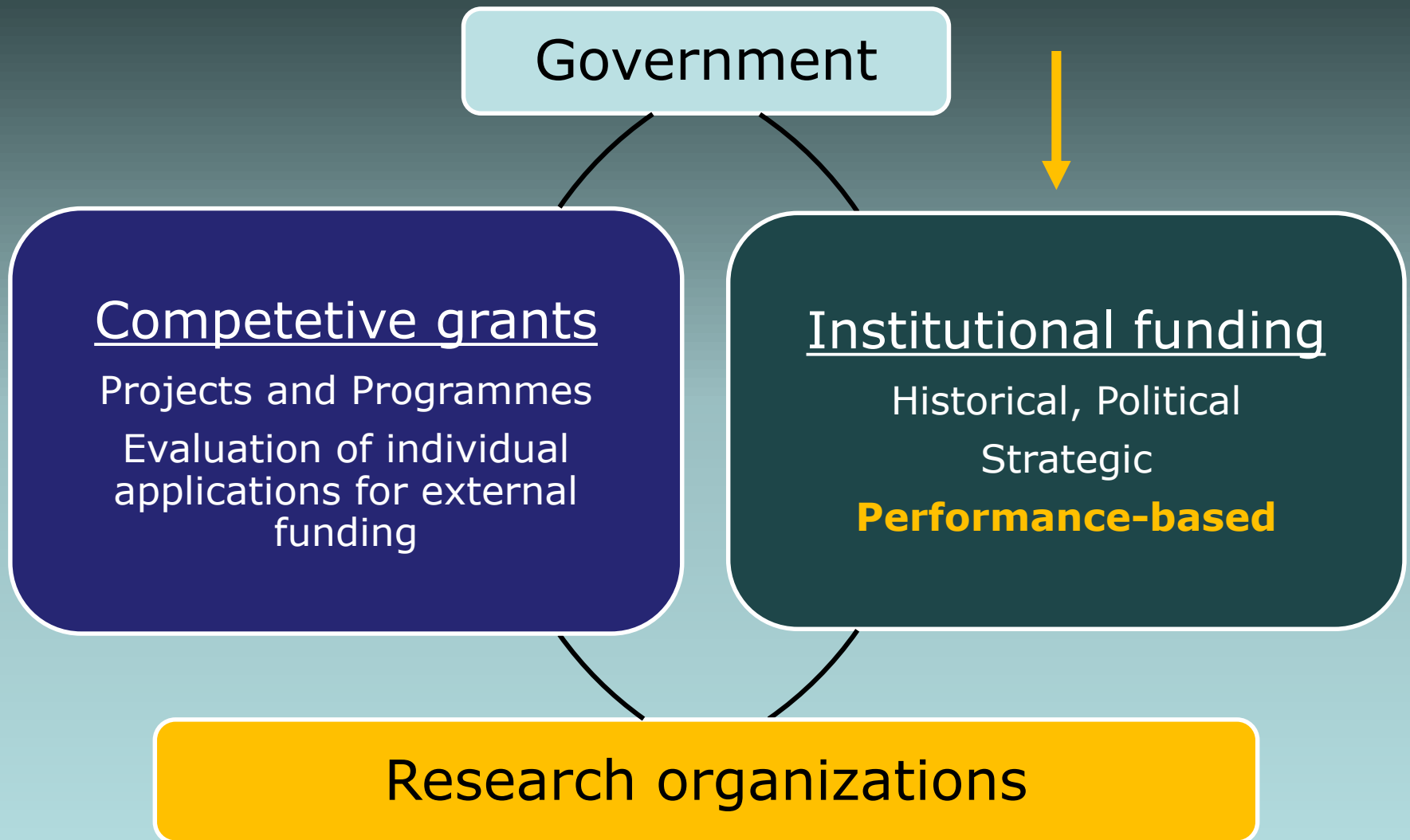
- Evaluations and funding based on peer review
- Indicator-based funding systems
- General advice

Definitions

- National research evaluation system
 - A policy tool to advise, manage and improve the activities of public sector research organisations.
 - May also be used to change the distribution of funding among research organisations.
- Performance-based research funding system (PRFS)
 - The part of the organisational level (institutional) funding system that is allocated on a competitive basis.

The dual funding system

Our focus is on institutional level evaluation and/or funding



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 - “national systems of research output **evaluation** used to distribute research **funding** to universities”.

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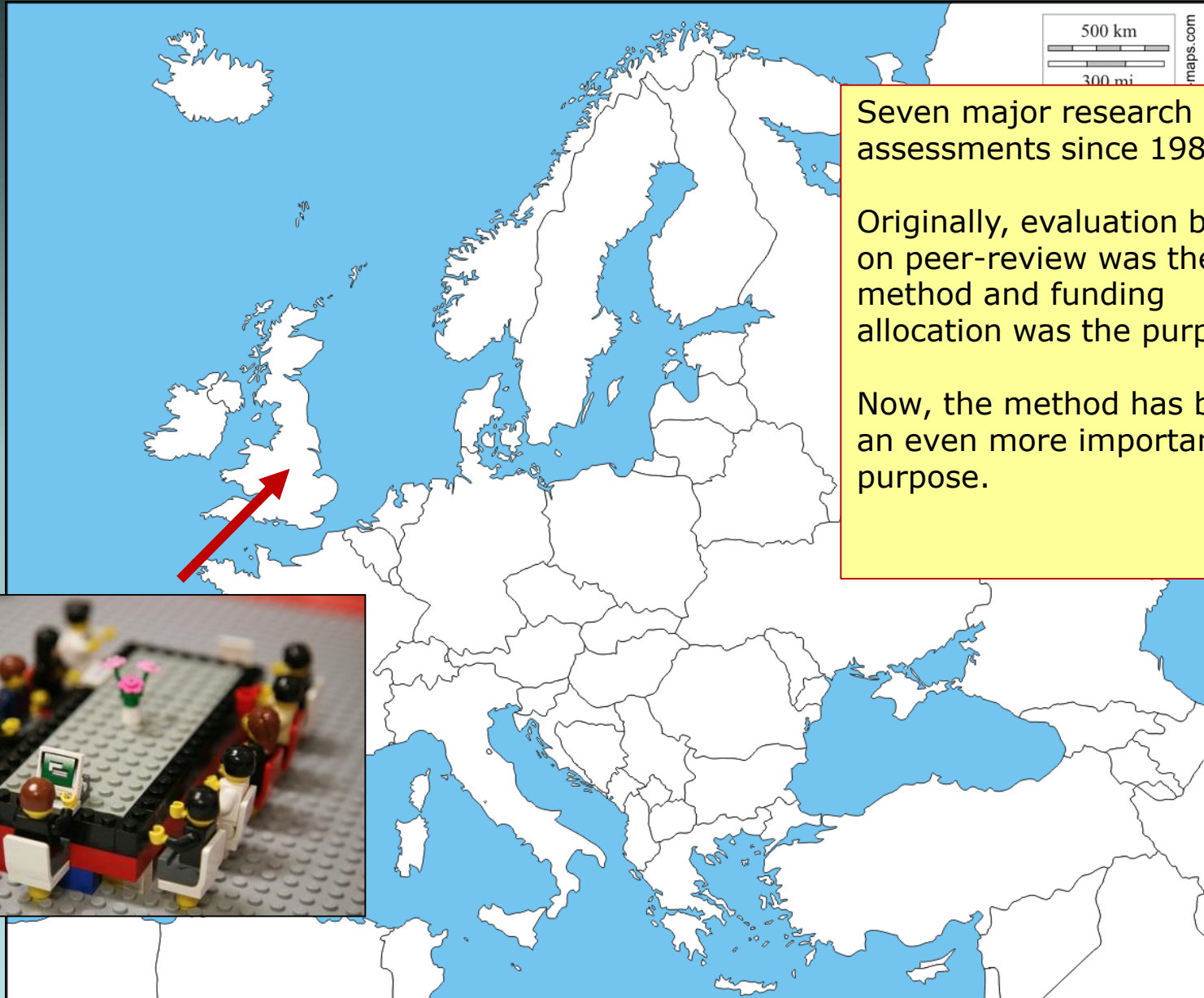
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Four types: United Kingdom

Combines two purposes: Research evaluation and funding



Seven major research assessments since 1986.

Originally, evaluation based on peer-review was the method and funding allocation was the purpose.

Now, the method has become an even more important purpose.



Four types: United Kingdom

Combines two purposes: Research evaluation and funding

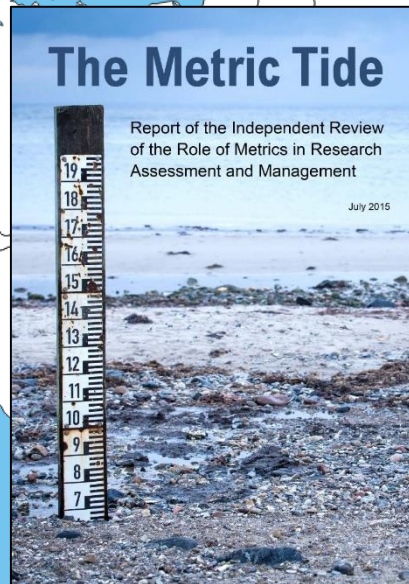


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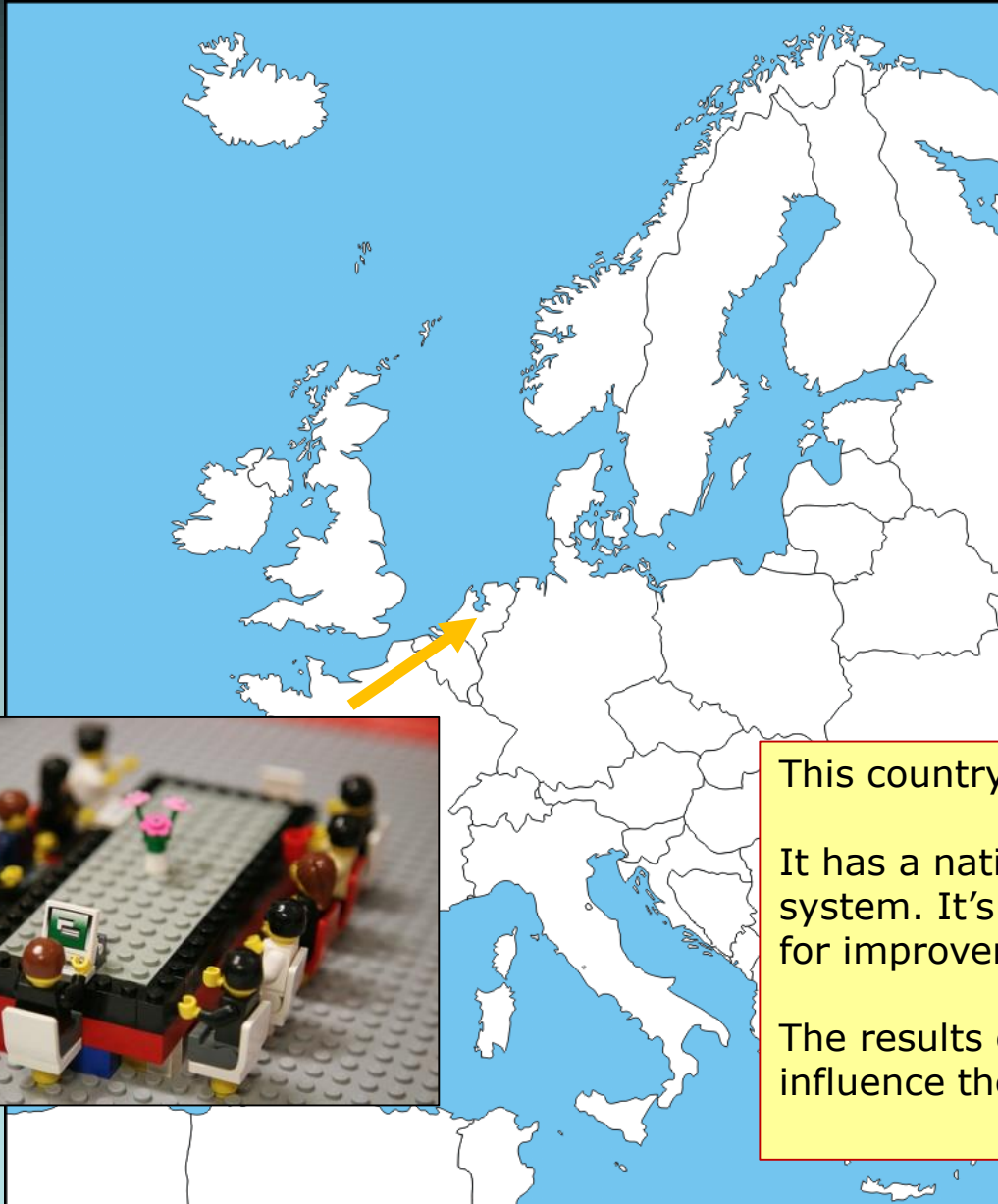
Now, the method has become an even more important purpose.

The Metric Tide report (Wilsdon et al., 2015):
“Metrics should support, not supplant, expert judgement.”



Four types: The Netherlands

Only one purpose: Research evaluation



Standard Evaluation Protocol
2015 – 2021

Protocol for Research Assessments
in the Netherlands

Amended version, 2016



This country does NOT have a PRFS.

It has a national research evaluation system. Its purpose is to provide advice for improvement.

The results of the evaluation do not influence the funding.

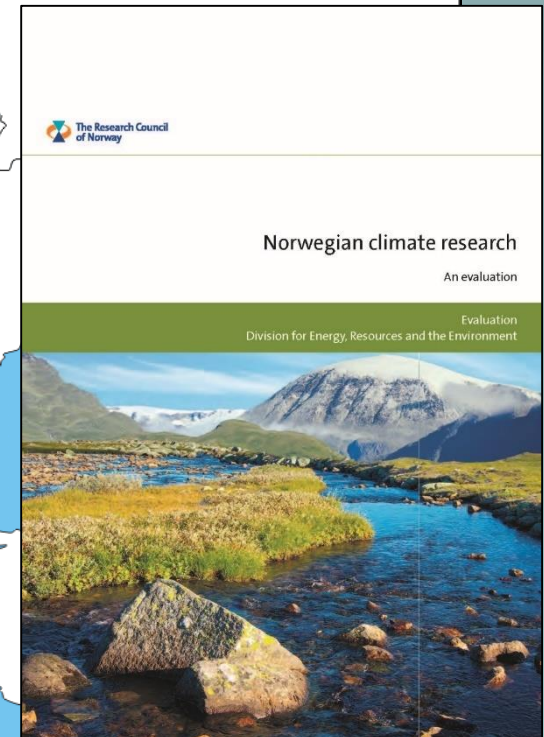
Four types: Norway (1)

Two systems, one for each purpose: The research evaluation system



National research assessments inspired by the UK are performed at intervals.

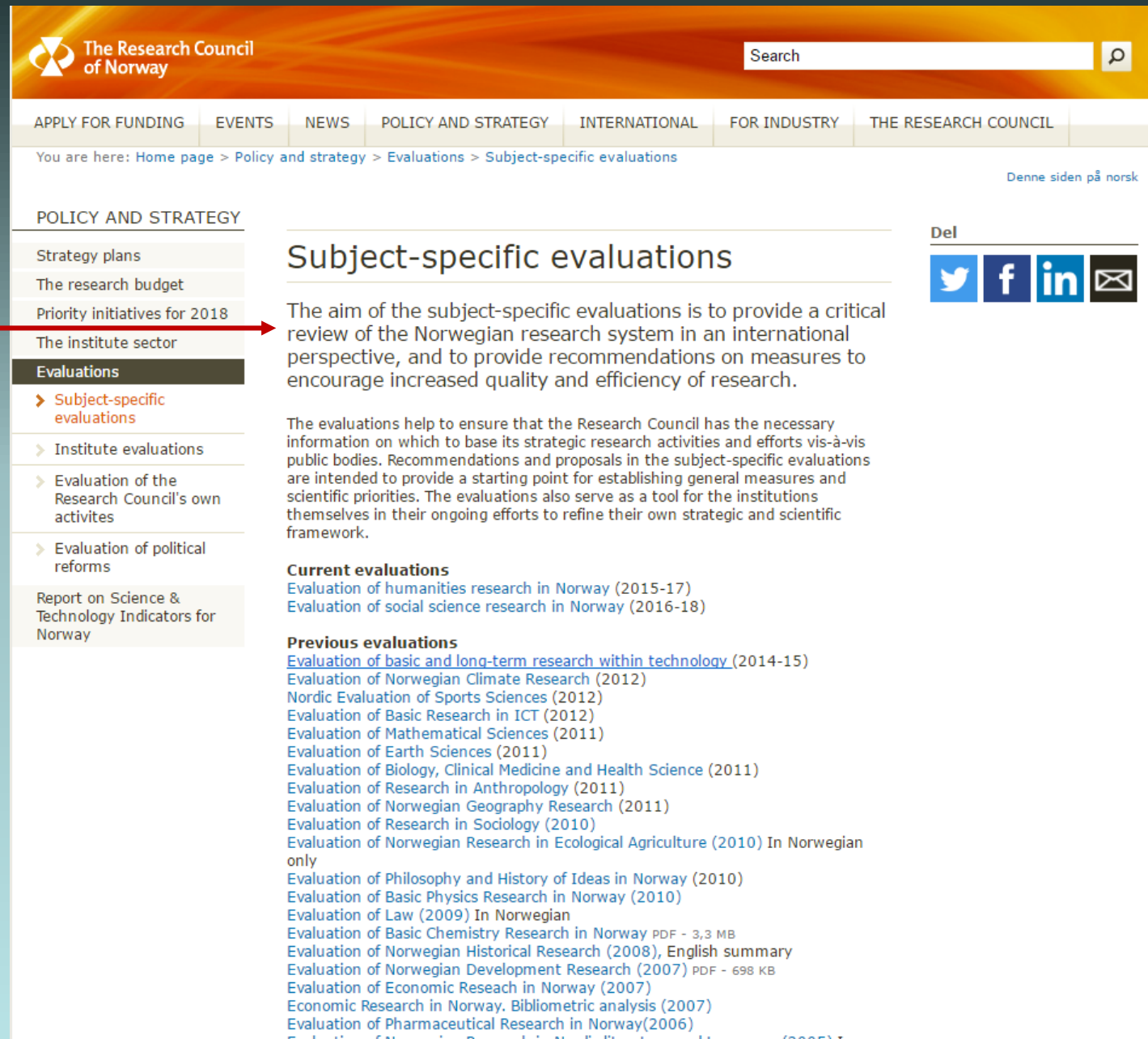
Like in the Netherlands, they do not influence funding.



Four types: Norway (1)

Two systems, one for each purpose: The research evaluation system

The aim of the subject-specific evaluations is to provide a critical review of the Norwegian research system in an international perspective, and to provide recommendations on measures to encourage increased quality and efficiency of research.



The Research Council of Norway

Search

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Denne siden på norsk

POLICY AND STRATEGY

- Strategy plans
- The research budget
- Priority initiatives for 2018
- The institute sector
- Evaluations**
 - **Subject-specific evaluations**
 - Institute evaluations
 - Evaluation of the Research Council's own activities
 - Evaluation of political reforms
- Report on Science & Technology Indicators for Norway

Subject-specific evaluations

The aim of the subject-specific evaluations is to provide a critical review of the Norwegian research system in an international perspective, and to provide recommendations on measures to encourage increased quality and efficiency of research.

The evaluations help to ensure that the Research Council has the necessary information on which to base its strategic research activities and efforts vis-à-vis public bodies. Recommendations and proposals in the subject-specific evaluations are intended to provide a starting point for establishing general measures and scientific priorities. The evaluations also serve as a tool for the institutions themselves in their ongoing efforts to refine their own strategic and scientific framework.

Current evaluations

- [Evaluation of humanities research in Norway \(2015-17\)](#)
- [Evaluation of social science research in Norway \(2016-18\)](#)

Previous evaluations

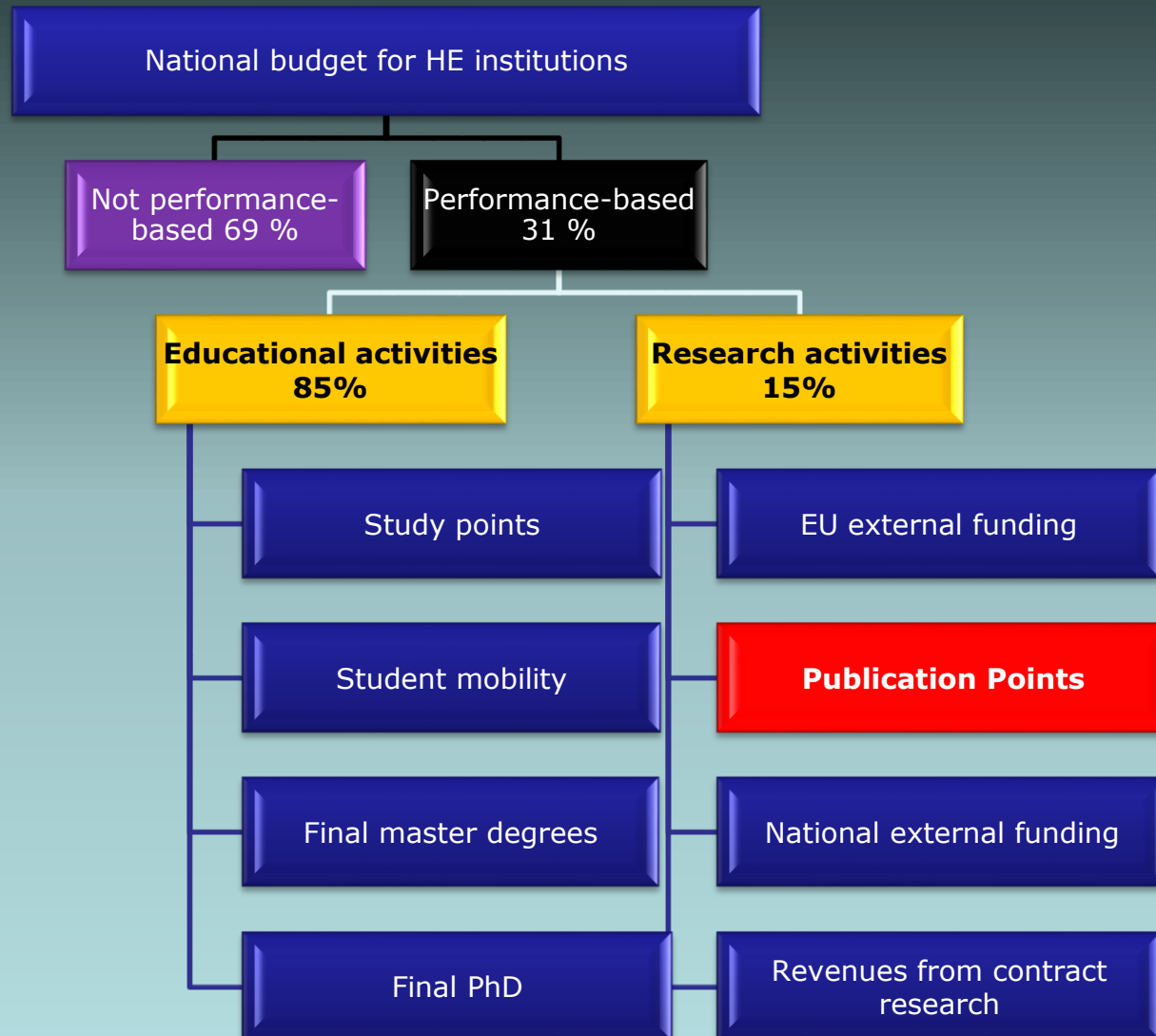
- [Evaluation of basic and long-term research within technology \(2014-15\)](#)
- [Evaluation of Norwegian Climate Research \(2012\)](#)
- [Nordic Evaluation of Sports Sciences \(2012\)](#)
- [Evaluation of Basic Research in ICT \(2012\)](#)
- [Evaluation of Mathematical Sciences \(2011\)](#)
- [Evaluation of Earth Sciences \(2011\)](#)
- [Evaluation of Biology, Clinical Medicine and Health Science \(2011\)](#)
- [Evaluation of Research in Anthropology \(2011\)](#)
- [Evaluation of Norwegian Geography Research \(2011\)](#)
- [Evaluation of Research in Sociology \(2010\)](#)
- [Evaluation of Norwegian Research in Ecological Agriculture \(2010\)](#) In Norwegian only
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- [Evaluation of Norwegian Research in Health Sciences \(2005\)](#)

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Four types: Norway (2)

Two systems, one for each purpose: The indicator-based funding system



Four types: Sweden 2009-2014

Purpose: Institutional funding



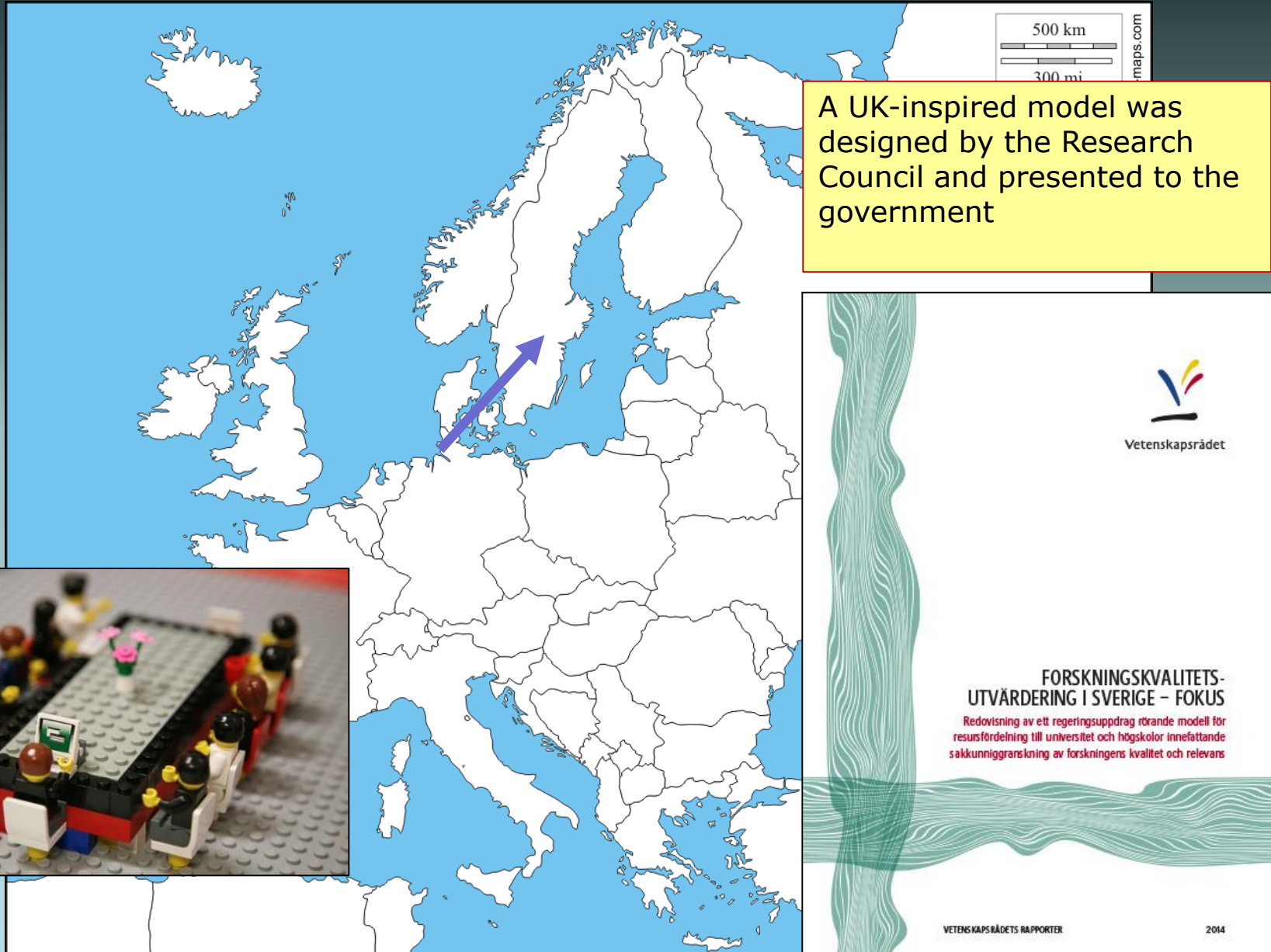
PRFS reallocation of a small portion of institutional funding based on two indicators:

- 1) External revenues
- 2) Publications and citations in Web of Science

A screenshot of the Web of Science search results page. The page shows a search for "AUTHOR: (zhang li)" with 19 results. The results are sorted by "Times Cited - highest to lowest". The first result is "Hybrid clustering for validation and improvement of subject-classification schemes" by Janssens, Fritz, Zhang Li, De Moor, Bart, et al. The second result is "Subject clustering analysis based on ISI category classification" by Zhang Li, Liu, Xinhai, Janssens, Fritz, et al. The third result is "Tracing the role of individual journals in a cross-citation network based on different indicators" by Zhang Li, Glanzel, Wolfgang, Liang, Lining, et al. The fourth result is "Diversity of references as an indicator of the interdisciplinarity of journals: Taking similarity between subject fields into account" by Zhang Li, Rousseau, Ronald, Glanzel, Wolfgang, et al. The fifth result is "The diffusion of H-related literature" by Zhang Li, Thiele, Bart, Glanzel, Wolfgang, et al. The sixth result is "Betweenness centrality and Q-measures in directed valued networks" by Rousseau, Ronald, Zhang Li, et al. The seventh result is "Journal cross-citation analysis for validation and improvement of journal-based subject classification in bibliometric research" by Zhang Li, Janssens, Fritz, Liang, Lining, et al. The page also includes a "Refine Results" section with filters for "Publication Years" and "Web of Science Categories".

Four types: Sweden in 2014: A change of model?

Combines two purposes: Research evaluation and funding



Four types: Sweden

Purpose: Institutional funding



The Government chose not to implement the model.

PRFS still reallocates of a small portion of institutional funding based on two indicators:

- 1) External revenues
- 2) Publications and citations in Web of Science

Research evaluation will have to be organized locally at each institution.

A screenshot of the Web of Science search results page. The page shows a search for "AUTHOR: (zhang lin)" with 19 results. The results are sorted by "Times Cited - highest to lowest". The first result is "Hybrid clustering for validation and improvement of subject-classification schemes" by Janssens, Fritz, Zhang Lin, De Moor, Bart, et al. The page also includes a "Refine Results" section with filters for "Publication Years" and "Web of Science Categories". The "Publication Years" filter shows results for 2012 (4), 2016 (3), 2017 (2), 2011 (2), and 2010 (2). The "Web of Science Categories" filter shows results for "INFORMATION SCIENCE LIBRARY SCIENCE (19)", "COMPUTER SCIENCE INTERDISCIPLINARY APPLICATIONS (12)", and "COMPUTER SCIENCE INFORMATION SYSTEMS (8)". The "Document Types" filter shows results for "ARTICLE (19)" and "PROCEEDINGS PAPER (3)". The "Organizations-Enhanced" filter is also visible.

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Four types: United Kingdom, Czech Republic?, (Italy)
Combines two purposes: Research evaluation and funding



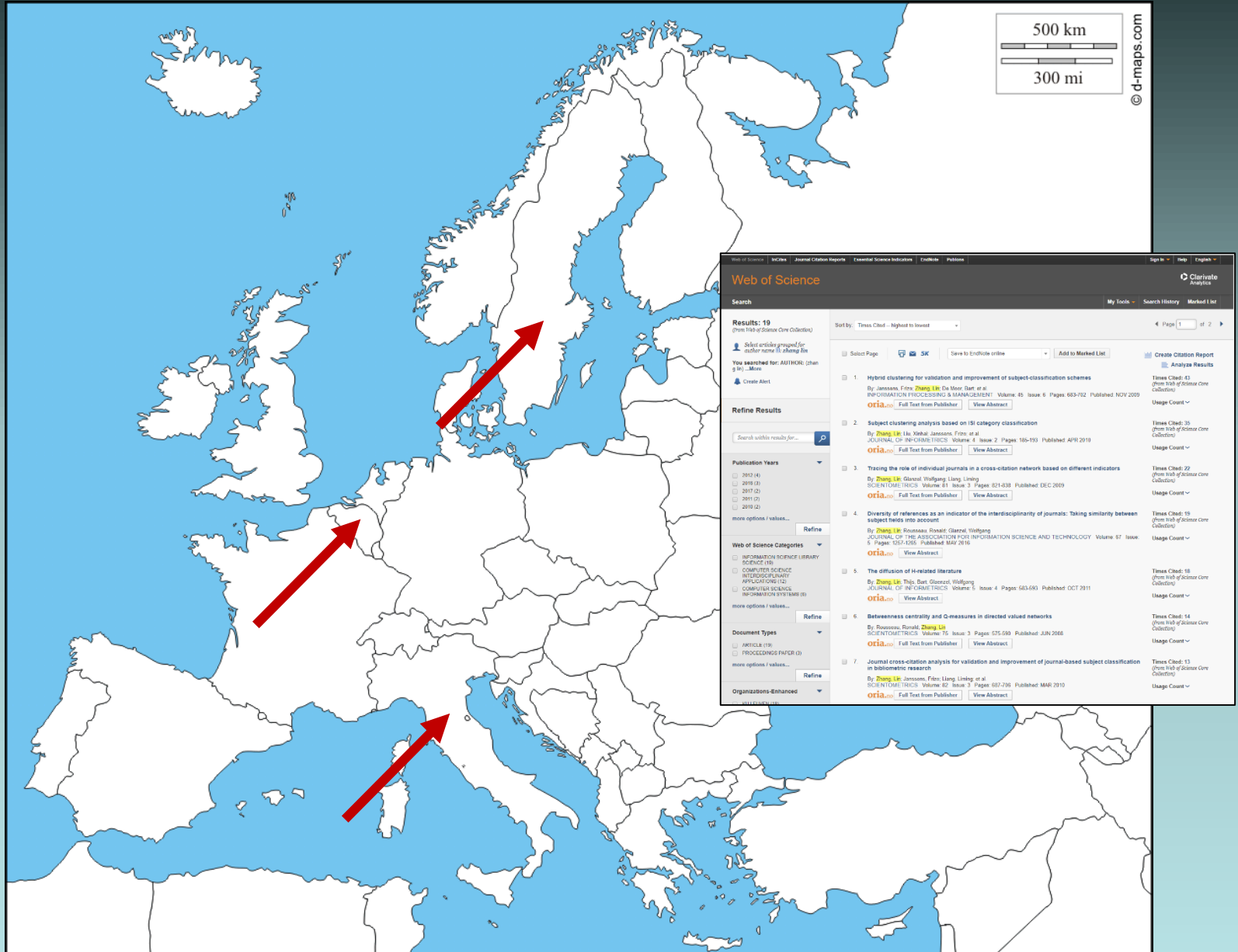
Four types: The Netherlands, Norway (1), Portugal

Only one purpose: Research evaluation



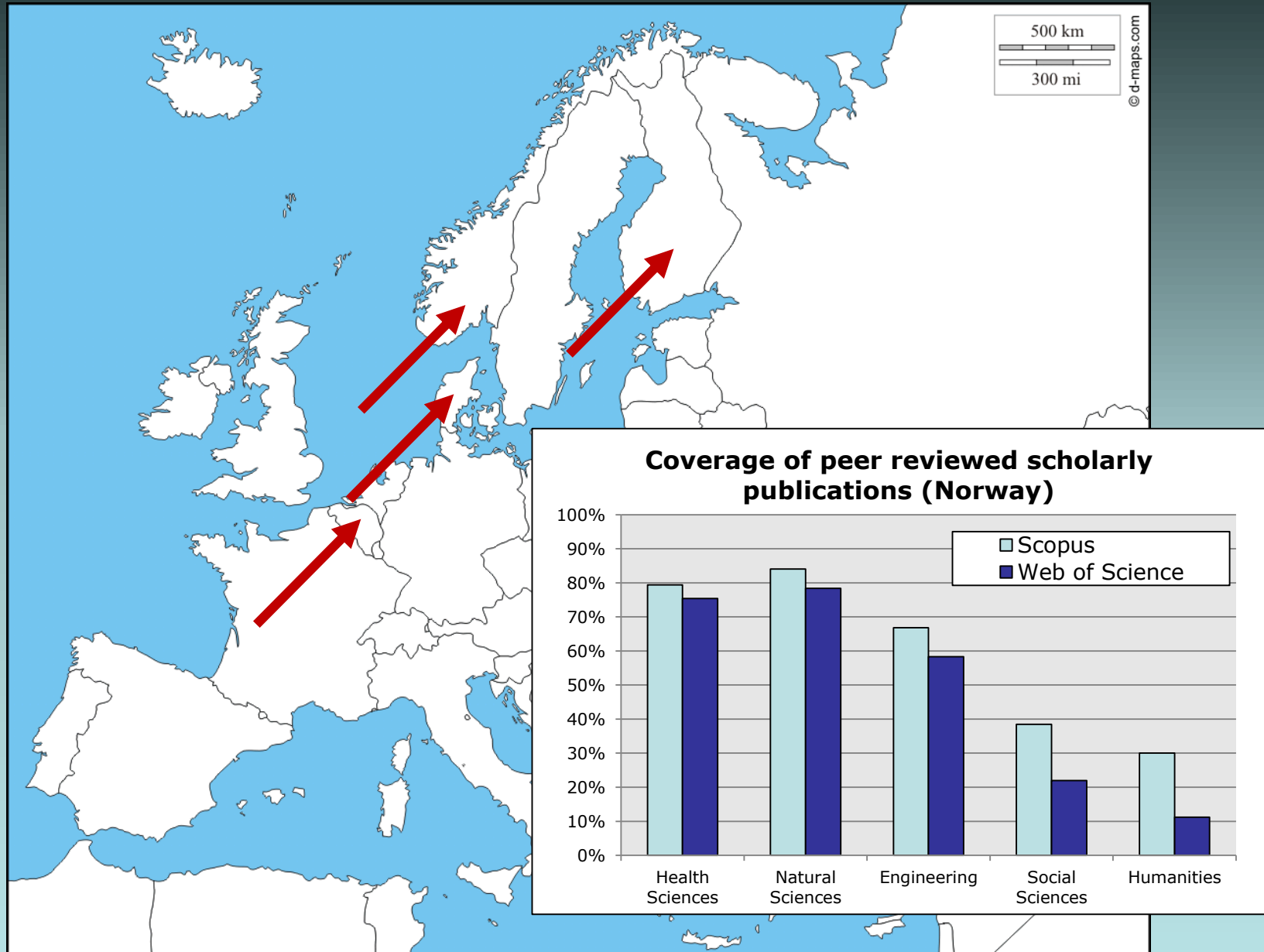
Four types: Sweden, Belgium (Flanders) until 2009, (Italy)

Purpose: Institutional funding



Four types: Norway (2), Belgium (Flanders) from 2009, Denmark, Finland

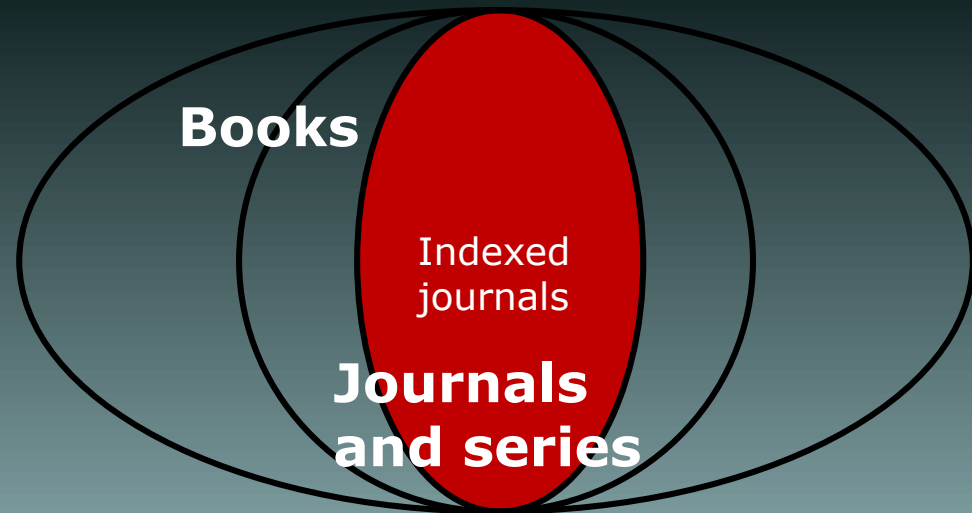
Purpose: Institutional funding



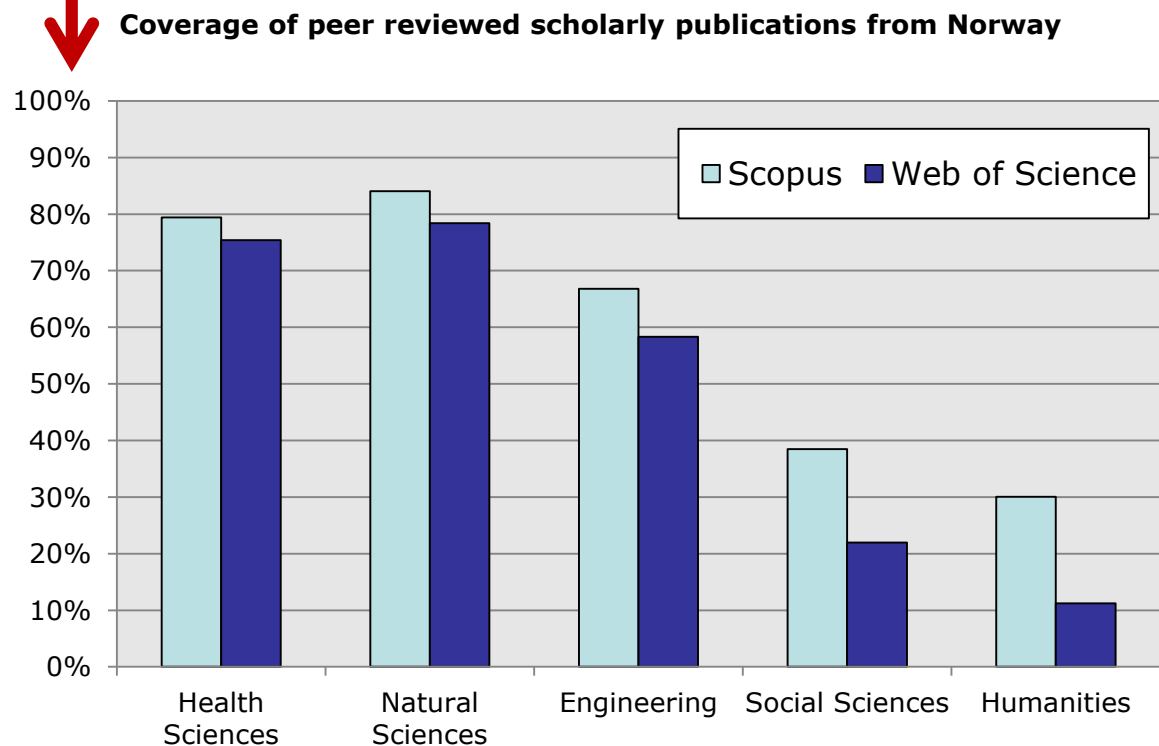
Incomplete coverage of international journals in the social sciences and humanities.

Very limited coverage of books.

Random or no coverage of the national level (books and journals)



100 per cent?



UCD Dublin and Swedish universities

Purpose: Local needs



Implementation of the Norwegian Model in University College Dublin: Processes and Challenges

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School of Information and Communication Studies
University College Dublin, Ireland
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Introduction

Performance-based funding systems are designed to encourage research and innovation. The Norwegian Model has been implemented in Belgium (Flanders), Denmark, Finland, Norway, among others, at aggregated level. Whilst the long-term effects of Norwegian model are still in question, it is generally agreed and expected that the number of publication in prestigious channels and their impact will increase. University College Dublin in the Republic of Ireland has recently adopted the model, implemented at individual level. The **Output-Based Research Support Scheme (OBRSS)** rewards individual researchers based on number of publications and supervision of doctoral students. A "ranked publication channel list" was created for all research areas, including peer-reviewed journals and academic book publishers. Each publication is ranked as level 1 or 2, largely based on the Danish, Finnish & Norwegian ratings, but also factors such as journal impact factor and inputs from consultation with academic staff.

Interim Report

- **759:**
 - UCD Academic staff receive additional grant monies to help support their research activities.
- **0.7% of Research Budget**
 - in new research funding was allocated to academic staff to support their research activities using this scheme
- **85% of academic staff updated their profiles**
 - More complete and up to date information is available in the Research Information System for reporting purposes. This leads to time saving in report production.
- **3% of academic staff queried the results of the scheme**
 - This compares with 50% on other internal funding schemes

Challenges, Evaluation, & Questions

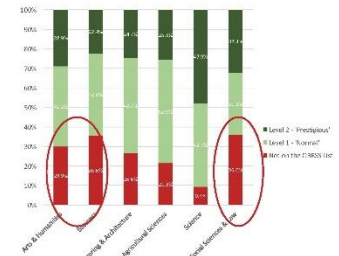
- **Construction of Database**
 - 38,847 Journals, 2,435 Book Series, 2,392 conferences & 2,524 publishers on publication channel list
 - Over 13,969 academic publications were matched to the channel list
 - 3,214 publications from 515 publishers, 974 conferences, 77 journals not on the list
- **'Prestigious' and 'Normal' Level**
 - Norwegian 2017, Finnish 2017, Danish BFI Level 2016-2017
 - 2017 Source Normalised Impact Factor (SNIP)
 - 2017 CiteScore
 - Dutch Ceres Codes for publishers only
- **Evaluation**
 - Percentage change in top-ranking journals (measured by SciVal)
 - Number of total research outputs (measured by SciVal)
 - Expenditure reports (36% of awards spent after 1 year; 3 year limit to funds)
- **Future Research**
 - What are the implications on research practices and knowledge production?
 - How to ensure the construction of the database of publication channels to be fair and transparent?
 - Are performance-based funding systems more effective at aggregated or individual level?

How does it work?



What we've learned so far

23% of UCD reported publications are not on the OBRSS list



Selected Bibliography:

- Aagaard, K., Bloch, C., & Schneider, J. W. (2015). Impacts of performance-based research funding systems: The case of the Norwegian Publication Indicator. *Research Evaluation*, 24(2), 106–117. <http://cei.org/10.1093/rev/rev003>
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- Hicks, D. (2012). Performance-based university research funding systems. *Research Policy*, 41(2), 251–261. <http://doi.org/10.1016/j.respol.2011.09.007>
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- UHR. (2004). A Bibliometric Model for Performance based Budgeting of Research Institutions: Recommendation from the committee appointed by the Norwegian Association of Higher Education Institutions on assignment from the Ministry of Education and Research. Oslo: UHR.

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Mutual Learning Exercise on PRFS in 2017

Organized by the European Commission for member states



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MLE on Performance-based Research Funding Systems

Performance-based Research Funding Systems (PRFS) are one of the mechanisms through which countries try to increase the performance of their public sector research systems. The nature of these systems – based on peer reviews, metrics or a combination of both – varies considerably among countries. The MLE will provide a learning opportunity for countries willing to better understand the advantages and drawbacks of various options, improve ongoing PRFS and deepen the assessments of the impact of different systems.

Date 	12 January 2017 to 11 September 2017
Exercise type 	Mutual learning
Geo coverage 	Austria Croatia Cyprus Czech Republic Estonia Italy Armenia Moldova Norway Portugal Slovenia Spain Sweden Turkey

Mutual Learning Exercise on PRFS in 2017

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MLE on Performance-based Research Funding Systems (PRFS)

Performance-based Research Funding Systems (PRFS) are one of the main types of public sector research systems. The nature of these systems – their objectives, their structure, their funding mechanisms – varies across countries. The MLE will provide a learning opportunity for countries to share their experiences and improve ongoing PRFS and deepen the assessments of the impact of PRFS.

Date 📅 12 January 2017 to 12 January 2017

Exercise type ➔ Mutual learning

Geo coverage ➔ Austria Croatia Cyprus Czech Republic Estonia Finland France Germany Greece Hungary Ireland Italy Latvia Lithuania Luxembourg Malta Netherlands Norway Poland Portugal Slovenia Spain Sweden Switzerland United Kingdom



Performance-Based Funding of University Research

MLE on Performance-based Research Funding Systems (PRFS)
Horizon 2020 Policy Support Facility

[Written by]
[Month - 20XX]

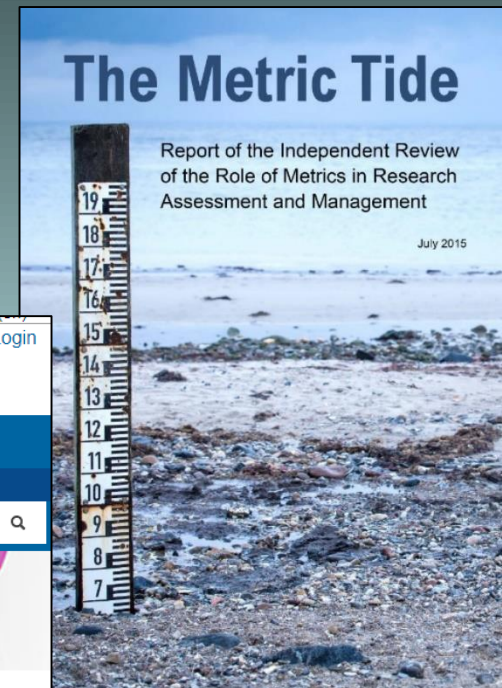
Research and Innovation

EUR [number] EN

Best practice or mutual learning?

PRFS need to be examined in their national contexts to understand their motivations and design. While research is mostly international, research funding is mostly national. Country differences in the design of a PRFS and its motivations should be expected and respected.

The Metric Tide report
(Wilsdon et al., 2015):
“Metrics should support, not
supplant, expert judgement.”



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Principle 1 in the Leiden Manifesto



1. Quantitative indicators cannot replace the judgment of expert assessors, but they can be used to help support them.

nature International weekly journal of science

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NATURE | COMMENT

Bibliometrics: The Leiden Manifesto for research metrics

Diana Hicks, Paul Wouters, Ludo Waltman, Sarah de Rijcke & Ismael Rafols

22 April 2015

Use these ten principles to guide research evaluation, urge Diana Hicks, Paul Wouters and colleagues.

PDF | Rights & Permissions

Subject terms: Careers · Research management · Publishing



Cryo-EM



The revolution will not be crystallized: a new method sweeps through structural biology. Move over X-ray crystallography. Cryo-electron microscopy is kicking up a storm by revealing the hidden machinery of the cell.

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Nature | 14 September 2015
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Nature | 11 September 2015
3. Southern Ocean sucks up more carbon dioxide than was thought
Nature | 11 September 2015

Shark attacks



The “Leiden Manifesto”

Bibliometrics for evaluation-based PRFS: Ten useful guidelines

1. Quantitative indicators cannot replace the judgment of expert assessors, but they can be used to help support them.
2. Evaluation of research activity has to adapt to the mission and objectives of the institution, individual or group being evaluated.
3. Indicators need to be developed that reflect the impact of research activities locally and regionally, and those that are developed in languages other than English.
4. The data collection and analysis processes have to be open, transparent and simple.
5. Those evaluated have to be able to verify the analysis of the indicators being used for the evaluation and, if they disagree, request re-evaluation.
6. The differences existing in terms of impact in different fields of research have to be taken into account when producing indicators.
7. Individual evaluation of researchers has to be based on qualitative assessment of their portfolio. Indicators cannot be used without taking into account the researcher’s context.
8. False precision and misplaced concreteness must be avoided.
9. The effects of certain indicators as incentives for certain activities and disincentives for others must be taken into account.
10. The indicators have to be reviewed and updated regularly.

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Bibliometrics for indicator-based PRFS: Ten considerations

1. **Bibliometrics is not 'objective'.** Use independent expertise and avoid power games in the design process.
2. Design the indicators in **dialogue** between the funder and the funded organisations and represent all areas of research in the process.
3. **Economic incentives** are inherently strong. Should not be stronger than necessary.
4. **Data sources.** Try to provide comprehensiveness and a balanced representation of all fields and publication practices.
5. **Definitions and delimitations.** Any chosen data source or indicator represents a definition and delimitation. Discuss definitions and their limitations.
6. **Indicators.** Discuss the dimensions of performances that indicators may represent, and whether they are available and valid across all fields.
7. **Field normalization** is needed because institutions have different research profiles. Field normalisation methods for citation indicators need to be supplemented with a balanced representation of productivity across fields.
8. **Counting methods.** They should be balanced between fields with different co-authorship practices, and should promote collaboration without stimulating the inclusion of authors with minimal contributions.
9. **Weighing of publication types.** Again: Balance the indicators across subfields with different publication practices, and stimulate a favourable development of those practices
10. **Ranking of publication channels.** Stimulate quality and societal relevance at the same time.

Bibliometrics for indicator-based PRFS: Ten considerations

1. **Bibliometrics is not 'objective'.** Use it carefully in the design process.
2. Design the indicators in **dialogue** between experts to represent all areas of research in the field.
3. **Economic incentives** are inherently linked to the design of indicators.
4. **Data sources.** Try to provide comprehensive data from all fields and publication practices.
5. **Definitions and delimitations.** Any indicator needs a clear definition and delimitation. Discuss definitions and delimitations.
6. **Indicators.** Discuss the dimensions of the indicators and whether they are available and valid data.
7. **Field normalization** is needed because different normalisation methods for citation indicators can lead to different representation of productivity across fields.
8. **Counting methods.** They should be consistent across practices, and should promote collaboration between fields with minimal contributions.
9. **Weighing of publication types.** Agree on the weighting of different publication practices, and stimulate the use of open access.
10. Ranking of publication channels. Stimulate the use of open access.



ARTICLE

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Unique, but still best practice? The Research Excellence Framework (REF) from an international perspective

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ABSTRACT Inspired by *The Metric Tide* report (2015) on the role of metrics in research assessment and management, and Lord Nicholas Stern's report *Building on Success and Learning from Experience* (2016), which deals with criticisms of REF2014 and gives advice for a redesign of REF2021, this article discusses the possible implications for other countries. It also contributes to the discussion of the future of the REF by taking an international perspective. The article offers a framework for understanding differences in the motivations and designs of performance-based research funding systems (PRFS) across countries. It also shows that a basis for mutual learning among countries is more needed than a formulation of best practice, thereby both contributing to and correcting the international outlook in *The Metric Tide* report and its supplementary Literature Review.

Performance-Based Funding of University Research

MLE on Performance-based Research Funding Systems (PRFS)

Horizon 2020 Policy Support Facility



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A bibliometric indicator with a balanced representation of all fields

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Abstract

As research in progress, we present two studies aimed at redesigning the bibliometric indicator of the “Norwegian Model” as response to an evaluation in 2013. The indicator is supposed to give a balanced representation of all fields, also those that are constructed as “peripheral” in traditional bibliometrics because of limited coverage in databases. The first study deals with balancing between different field-dependent co-authorship practices in the indicator, the other with the possible addition of a measurement of citation impact that could be applicable across all fields.

Keywords



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Outline

1. Definitions

- National research evaluation systems
- Performance-based institutional funding systems

2. A typology:

- Four types: United Kingdom, Sweden, Norway, the Netherlands
- More examples: Belgium (Flanders), Croatia, Czech Republic, Denmark, Finland, Italy, Portugal

3. Experience-based advice:

- Evaluations and funding based on peer review
- Indicator-based funding systems
- General advice

General advice:

National institutional evaluation and/or funding systems

- Recognize that such systems are necessarily embedded in national contexts and policies: Seek mutual learning rather than 'best practice'
- The system may do harm or may have positive effects, depending on how it is designed and implemented
- The system should be only one policy tool among several others. Create an ecology rather than a monoculture of funding mechanisms and incentives
- Consult several independent experts