ELSEVIER

Elsevier Research Intelligence

Using data to drive policy and research assessment

Dr Lisa Colledge
Director of Research Metrics

21 April, 2016

Empowering Knowledge

Two Golden Rules of using research metrics give a balanced, multi-dimensional view

Always use both qualitative and quantitative input into your decisions

Always use more than one research metric as the quantitative input

Coming up…

Example of metrics in action – Oceanography and Norway

A strategy shared between all stakeholders

Golden Rule 2 in action, and community validation

Golden Rule 1 in action, and community validation

Top Countries Oceanography

Map | Table | Chart

Export

Top 100 Countries in this Research Area, by Scholarly Output

Worldwide

← Filter for more (regional) detail

Size: Scholarly Output total value

Color: Field-Weighted Citation Impact total value

Top Countries Oceanography

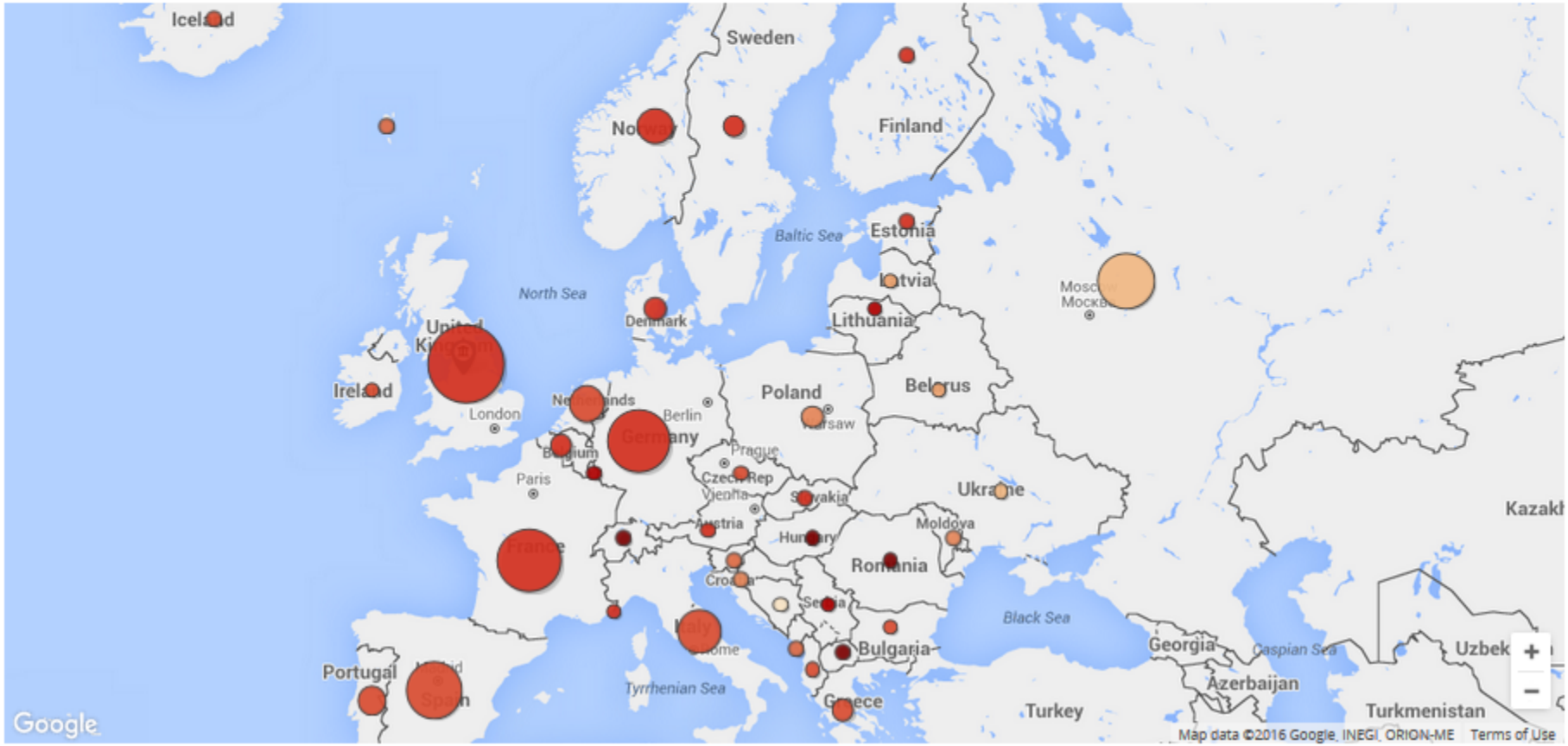
Map | Table | Chart

Export

Top 100 Countries in this Research Area, by Scholarly Output

Europe | reset filter

Size: Scholarly Output total value | Color: Field-Weighted Citation Impact total value



Top Countries Oceanography

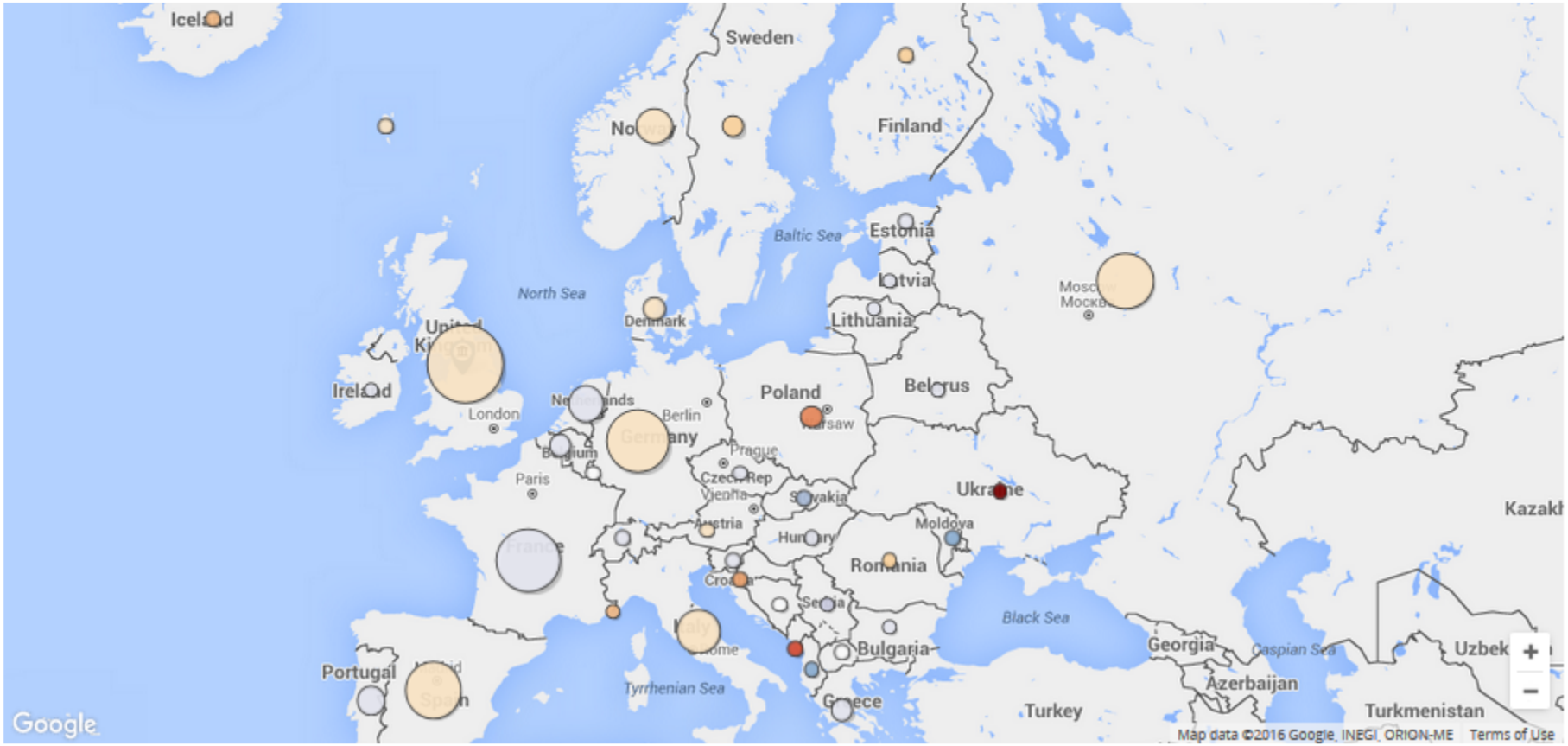
Map | Table | Chart

Export

Top 100 Countries in this Research Area, by Scholarly Output

Europe | reset filter

Size: Scholarly Output total value | Color: Field-Weighted Citation Impact decline / growth



Top Countries **Oceanography**

Map | Table | Chart

Export

Top 100 Countries in this Research Area, by Scholarly Output

Europe | reset filter

Size: Scholarly Output decline / growth | Color: Field-Weighted Citation Impact decline / growth

Top Countries Oceanography

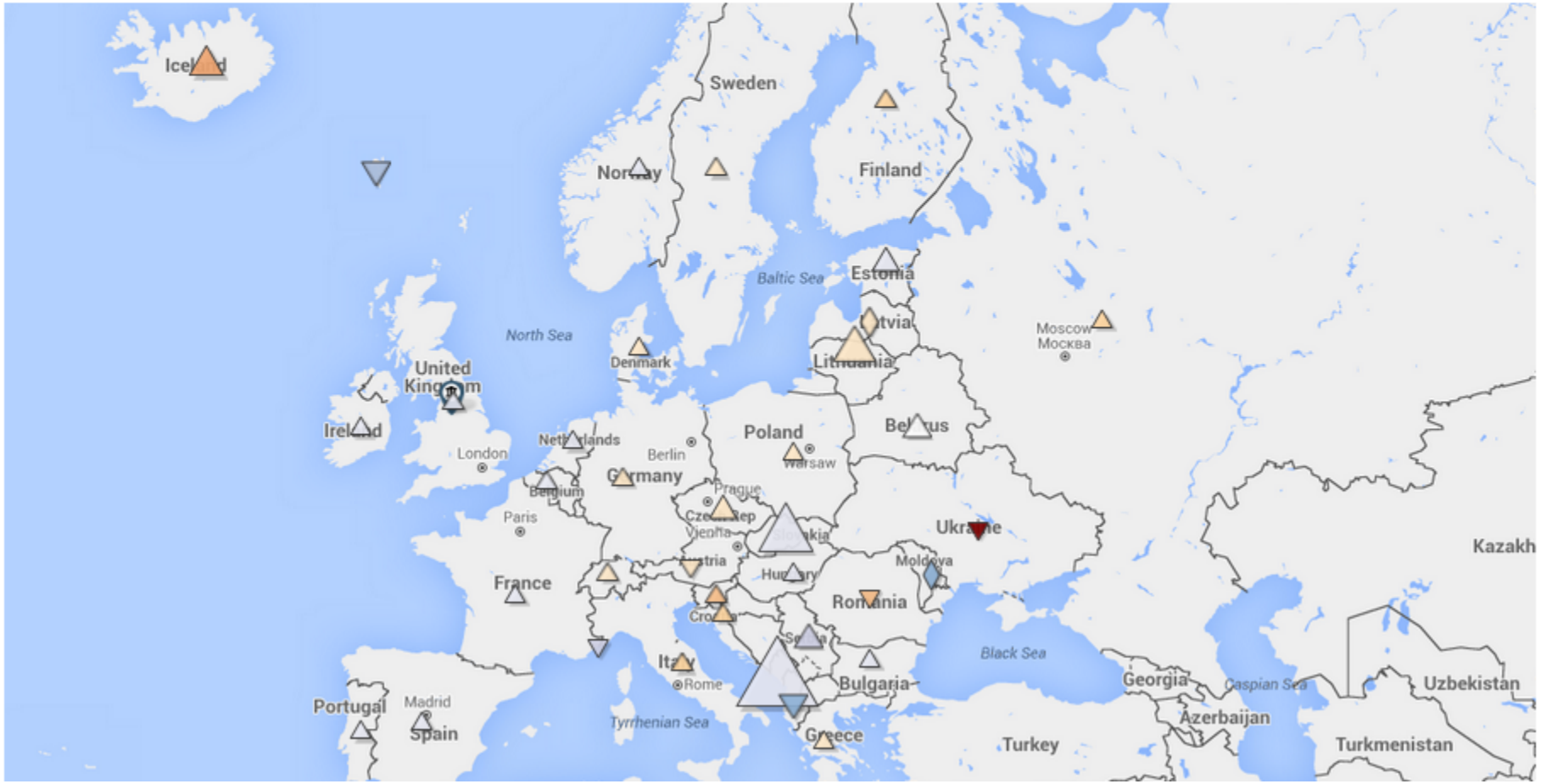
Map | Table | Chart

Export

Top 100 Countries in this Research Area, by Scholarly Output

Europe | reset filter

Size: Scholarly Output | decline / growth | Color: Field-Weighted Views Impact | decline / growth



Top Countries Oceanography

Map | Table | Chart

Export

Top 100 Countries in this Research Area, by Scholarly Output

Europe | reset filter

Size: Scholarly Output decline / growth | Color: Publications in Top Journal... decline / growth

Coming up…

Example of metrics in action – Oceanography and Norway

A strategy shared between all stakeholders

Golden Rule 2 in action, and community validation

Golden Rule 1 in action, and community validation

A shared strategy is most effective in increasing visibility

Same research metrics for evaluation (top-down) and showcasing (bottom-up) builds shared goals

Oceanography

View data sources | 2010 to 2014 | no subject area filter selected | ASJC

Summary | Institutions | Countries | Authors | Scopus Sources | Keyphrases

Top Institutions

Map | Table | Chart

Export

Top 100 institutions in this Research Area, by Scholarly Output

Europe | Norway | All sectors | reset filter

View on chart

	Institution	Scholarly Output	Publications in...	Field-Weighted C...	Citation Count
1.	Institute of Marine Research	320	-	1.47	2,903
2.	University of Bergen	315	-77.8%	1.63	2,927
3.	University of Oslo	173	-58.3%	1.70	2,056
4.	University of Tromso	148	-66.7%	1.51	1,365
5.	Norwegian Institute for Water Research	104	-	1.50	1,289
6.	Norwegian Polar Institute	92	-	1.55	1,063
7.	Norwegian University of Science and Technology	68	-100.0%	1.01	377
8.	Statoil ASA	49	-25.0%	1.63	629
9.	SINTEF	40	-100.0%	1.58	422
10.	University of Stavanger	32	-	1.60	295

Oceanography

View data sources | 2010 to 2014 | no subject area filter selected | ASJC

Summary | Institutions | Countries | Authors | Scopus Sources | Keyphrases

Top authors

Chart | Table | Export

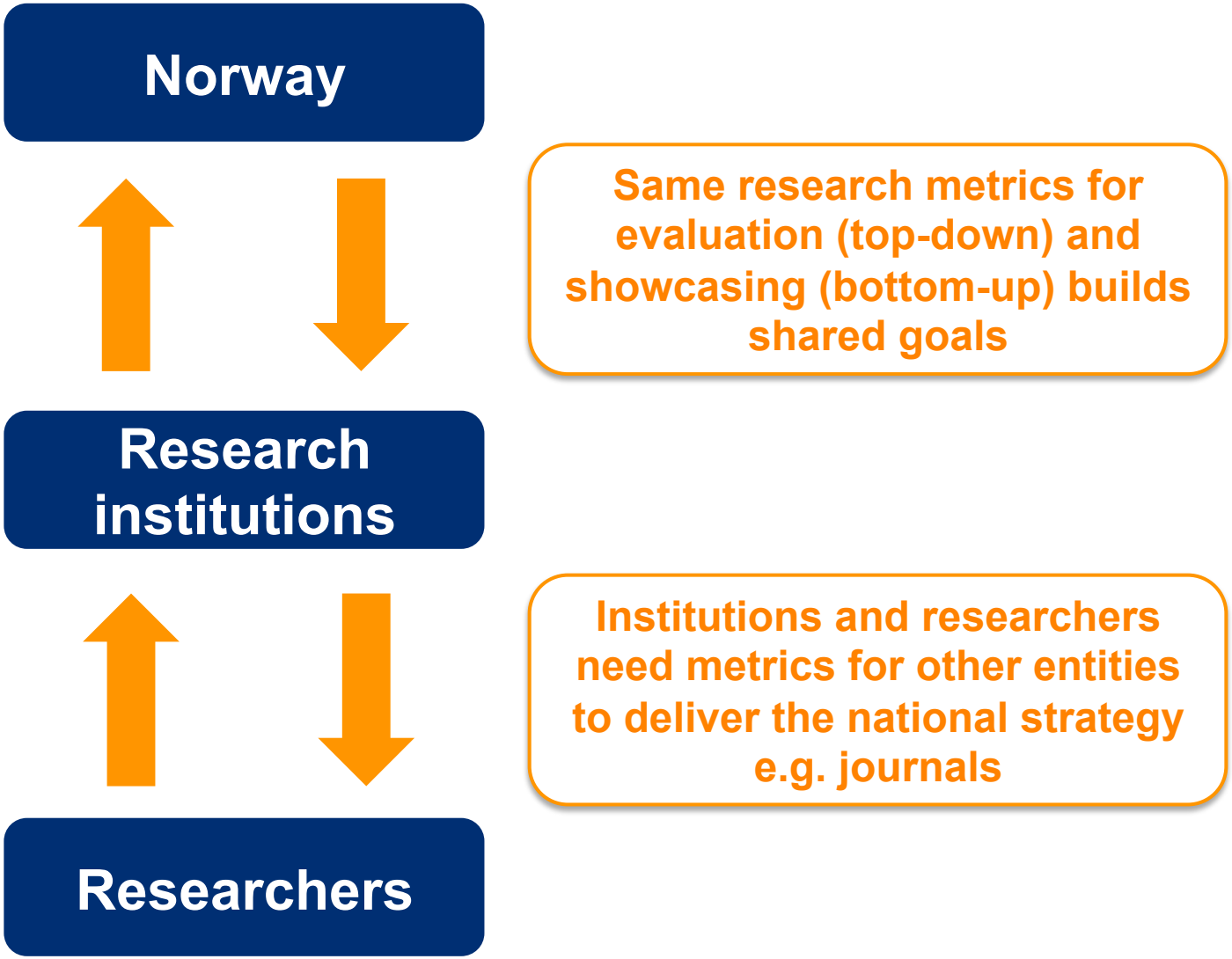
Top 100 authors in this Research Area, by Scholarly Output

Europe | Norway | reset filter

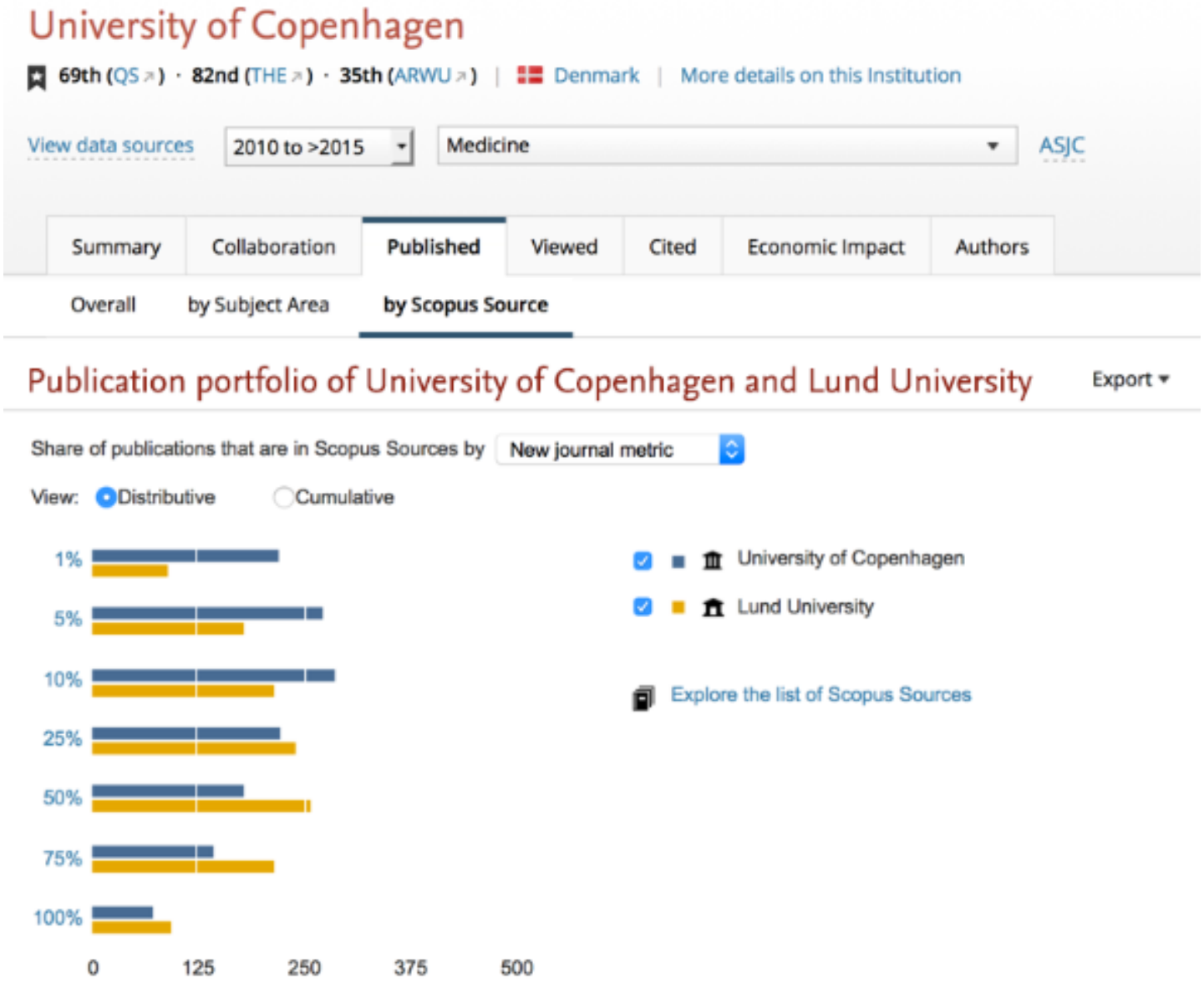
View on chart

	Author	Affiliation	Scholarly Output	Publications in...	Field-Weighted C...	Citation Count
1.	Drinkwater, Kenneth F.	Institute of Marine Research	24	0	2.82	422
2.	Fer, Ilker	University of Bergen	24	0	1.72	206
3.	Nash, Richard D M	Institute of Marine Research	19	0	1.49	152
4.	Kovacs, Kit Maureen	Norwegian Polar Institute	17	0	1.48	153
5.	Lydersen, Christian	Norwegian Polar Institute	16	0	1.18	123
6.	Lacasce, Joseph Henry	University of Oslo	14	0	2.11	174
7.	Geffen, Audrey J.	University of Bergen	13	1	1.18	144
8.	Granskog, Mats	Norwegian Polar Institute	13	1	2.05	205

A shared strategy is most effective in increasing visibility



Institutions often monitor their researchers' overall output



Researchers often interpret direction into a publication strategy

List of Scopus Sources

Year range: 2010 to 2016 • Subject area: Medicine • Percentile: 10%

View the Scholarly Output of the selected entities, by Scopus Source: Export

Scopus Source	New journal metric	University of Copenhagen	Lund University
Anticancer Research	0.647	-	-
Breast Cancer Research and Treatment	1.383	-	40
Cancer	1.996	-	67
Cancer Research	1.805	8	51
Cell and Tissue Research	4.694	9	-
Cell cycle	0.880	-	26
Clinical Cancer Research	2.030	-	68
EMBO Reports	1.805	9	-
Genes and Development	1.244	8	-
Journal of Allergy and Clinical Immunology	2.593	-	-
Journal of Biological Chemistry	1.244	-	46
Journal of Cell Biology	2.030	11	-
Journal of Clinical Oncology	4.694	-	52
Journal of Investigative Dermatology	1.148	8	-
Journal of Neurosceince	1.996	16	-
Oncogene	1.609	-	47
Oncologist	1.795	-	25

Coming up…

Example of metrics in action – Oceanography and Norway

A strategy shared between all stakeholders

Golden Rule 2 in action, and community validation

Golden Rule 1 in action, and community validation

Two Golden Rules of using research metrics give a balanced, multi-dimensional view

Always use both qualitative and quantitative input into your decisions

Always use more than one research metric as the quantitative input

Golden Rule 2 directs our research metrics strategy

Two Golden Rules of using research metrics give a balanced, multi-dimensional view

Always use both qualitative and quantitative input into your decisions

Always use more than one research metric as the quantitative input

- A research metric's strengths can complement the weaknesses of others
- There are lots of different ways of being excellent
- Using multiple metrics drives desirable changes in behaviour

Golden Rule 2 → the "basket of metrics" - entity dimension

The Basket of Metrics applies to multiple entities

Entities to which metrics apply:

Journal
Other serials

Country

Researcher

Institution

Subject Area

Article

Custom publication set

Golden Rule 2 → the "basket of metrics" – metrics dimension

The Basket of Metrics contains metrics based on multiple types of data, and multiple metrics per data type

Golden Rule 2 → the "basket of metrics"

Entities to which metrics apply:

Journal
Other serials

Country

Researcher

Institution

Subject Area

Article

Custom publication set

Each metric is available for each entity

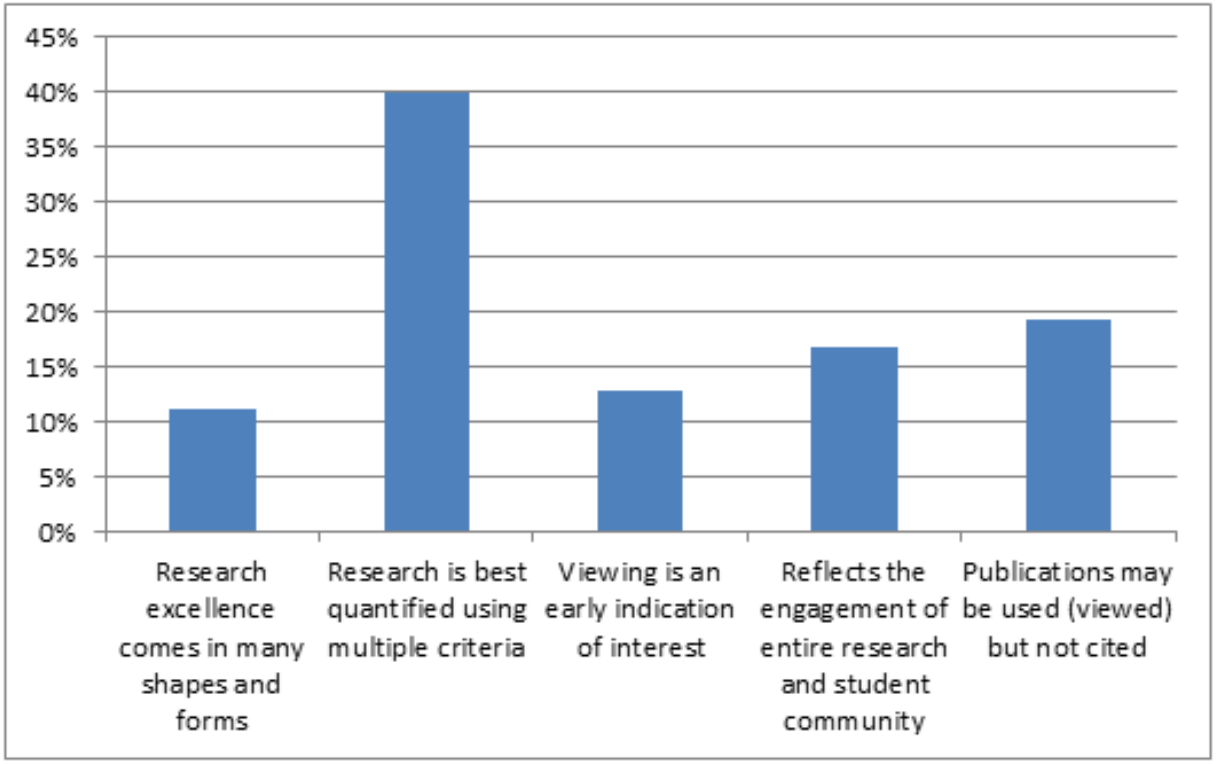
(with a few exceptions)

The “basket of metrics” for journals

Type of metric:	Community	Contributions	Consumption	Scholarly Impact	Social Impact
	Editor Board Authors	Outputs Funding awards	Usage Citations Audience Patents	Scholarly Activity Academic Opinion	Social Activity Media Activity
Entities to which metrics apply: **Journal** **Other serials**	Geographical spread	Scholarly Output	New journal metric	Scholarly Discussion	Social media mentions
Country	Collaboration network	Research data output	SNIP, SJR, IF	Mendeley Counts	Media mentions
Researcher	Sector distribution	Conference output	Citation counts	Peer review metrics	Medical guidelines
Institution	*h*-, *g*-, *m*-indices	Funding sources	Usage counts	Prizes and awards	Influence policies
Subject Area	Individual metrics		Audience		
Article			Patent metrics		
Custom publication set					

What is the most important reason for using viewing metrics?

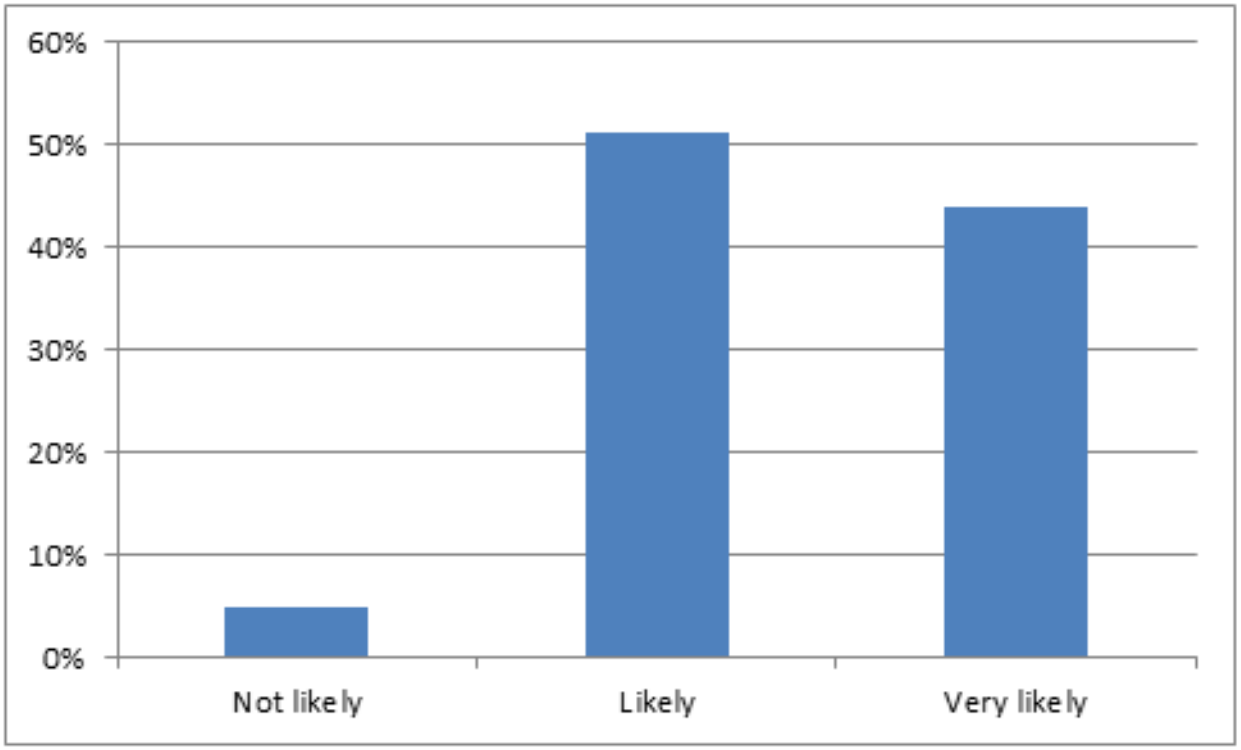
125 external participants responded, and could select one option



From: A “basket of metrics”—the best support for understanding journal merit. *Lisa Colledge; Chris James, 2015, European Science Editing 41(3), 61-65*
http://www.ease.org.uk/resources/journal/archive/august-2015413

How likely would you be to use viewing metrics if you had access?

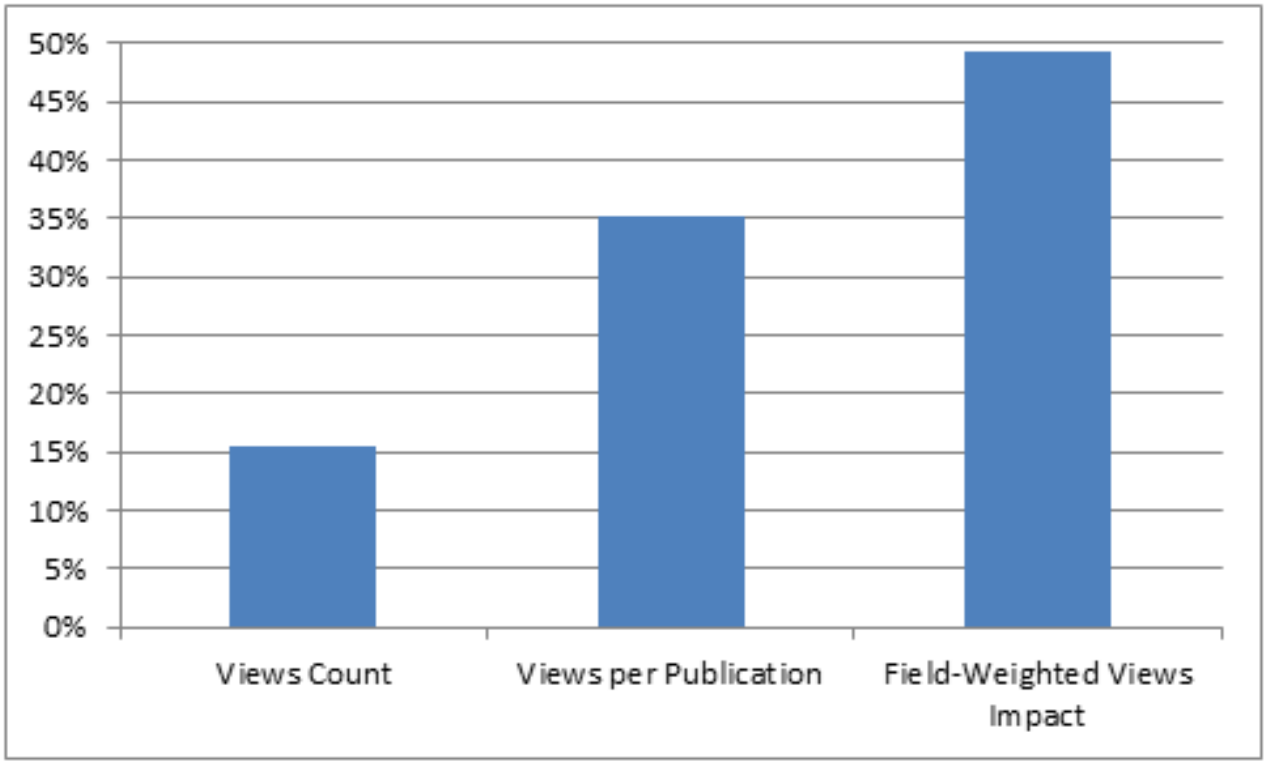
123 external participants responded, and could select one option



From: A “basket of metrics”—the best support for understanding journal merit. *Lisa Colledge; Chris James, 2015, European Science Editing 41(3), 61-65*
http://www.ease.org.uk/resources/journal/archive/august-2015413

Both simple and sophisticated metrics are needed in the basket

122 external participants responded, and could select one option



From: A “basket of metrics”—the best support for understanding journal merit. *Lisa Colledge; Chris James, 2015, European Science Editing 41(3), 61-65*
http://www.ease.org.uk/resources/journal/archive/august-2015413

Coming up…

Example of metrics in action – Oceanography and Norway

A strategy shared between all stakeholders

Golden Rule 2 in action, and community validation

Golden Rule 1 in action, and community validation

Two Golden Rules of using research metrics give a balanced, multi-dimensional view

Always use both qualitative and quantitative input into your decisions

- This is about benefitting from the strengths of both approaches, not about replacing one with the other
- Combining both approaches will get you closer to the whole story
- Valuable intelligence is available from the points where these approaches differ in their message

Always use more than one research metric as the quantitative input

Selection of Stern review responses from organizations

- **"We would welcome a lighter touch REF and there are some areas where metrics can be useful, but peer review should remain at the heart of the process, with metrics used where appropriate to complement and aid human judgement."** Russell Group
- **"… we welcome any review of REF that aims to reduce the burden, however would caution against any suggestion that the REF can be replaced by a purely metric based system."** Committee of University Chairs
- **"We recognise that the inclusion of metrics might have a role in simplifying future assessments, but would continue to advocate a system that includes a strong peer review element."** HEFCW
- **"The robustness of existing metrics as an effective research assessment tool is a matter of concern. Carefully chosen metrics may help reduce some of the burden of REF – both for outputs and environment – but should not replace peer review."** University Alliance

http://wonkhe.com/blogs/green-paper-responses/

All done…

Example of metrics in action – Oceanography and Norway

A strategy shared between all stakeholders

Golden Rule 2 in action, and community validation

Golden Rule 1 in action, and community validation

Two Golden Rules of using research metrics give a balanced, multi-dimensional view

Always use both qualitative and quantitative input into your decisions

- This is about benefitting from the strengths of both approaches, not about replacing one with the other
- Combining both approaches will get you closer to the whole story
- Valuable intelligence is available from the points where these approaches differ in their message

Always use more than one research metric as the quantitative input

- A research metric's strengths can complement the weaknesses of others
- There are lots of different ways of being excellent
- Using multiple metrics drives desirable changes in behaviour

Thank you for your attention