Hello all,
We are still waiting for people to arrive and we will start at 2 minutes after the hour.

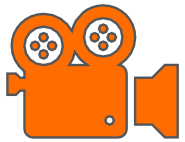
Research Impact Metrics: SciVal Workshop 3

Linda Galloway– Research Intelligence Customer Consultant

Jen Hill – Account Manager

August 18, 2021

Housekeeping



Today's webinar is being recorded. The recording link will be uploaded where you connected to the meeting today, at Researcher Academy.

I will also **share these slides** with you afterwards via Researcher Academy. I'll also provide **a code** which gets you to the link to download **your certificate** of attendance plus other resources. Please also tell us how we did in the **survey.**

I also invite your input. Feel free to **ask questions** using the chat option or go ahead and unmute yourself**.** Additionally, the last 5 min of our time together is for Q & A.

Launch Poll

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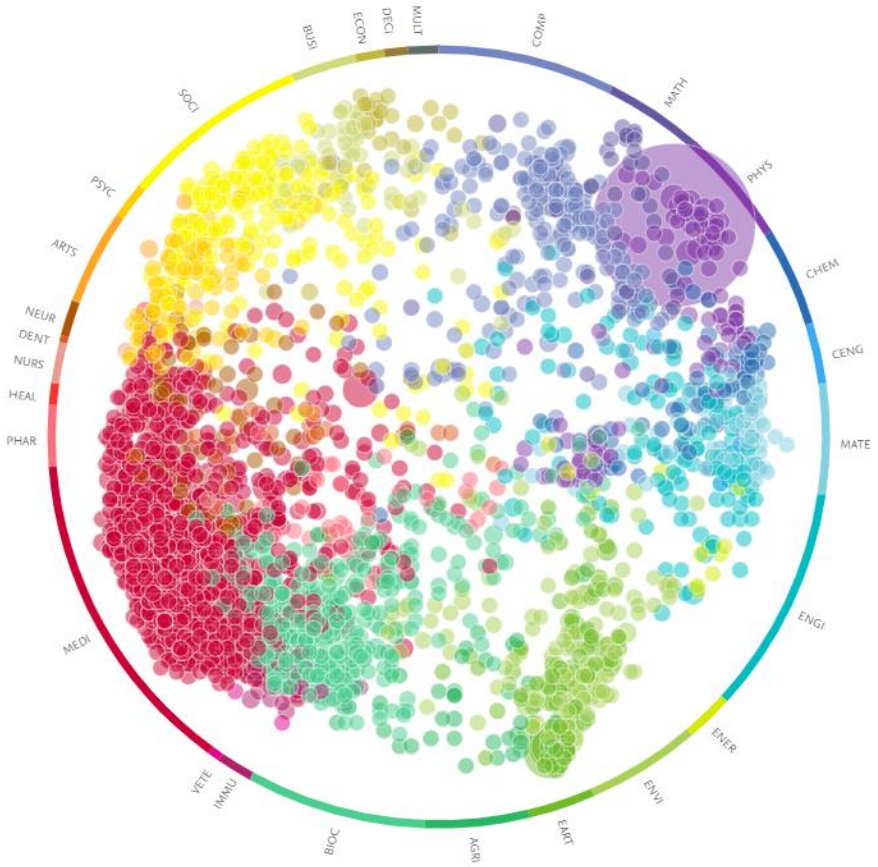
Today’s Goals

Learn about ethical application of metrics, understand most frequently used metrics and begin to use Topics.

Agenda:

1. Array of metrics
   - Where are they?
   - Ethical application of metrics
   - OA filters
2. What are we good at?
3. Introduction to Topics
4. Q & A



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SciVal Workshop Series

Wed, July 21 3pm Central	Getting Started with SciVal	https://researcheracademy.elsevier.com/workshop/2fd9a13c-e9cf-46bd-8e67-ad03c0f74801
Thurs, Aug 5 11:30am Central	Institutional Insights	https://researcheracademy.elsevier.com/workshop/60774d53-bcef-4940-a023-f2c904733c87
Wed, Aug 18 3pm Central	**Research Impact Metrics**	**https://researcheracademy.elsevier.com/workshop/44b68225-f2df-4616-9be3-1fb2e461cc71**
Thurs, Sept 2 11:30am Central	Performance is relative: Benchmarking	https://researcheracademy.elsevier.com/workshop/a7d42c4b-f1aa-46bb-8888-bc949b355265
Wed, Sept 15 3pm Central	Facilitating Collaborations	https://researcheracademy.elsevier.com/workshop/e5bb2029-6ae3-4f2f-8d69-d320f86da39f
Thurs, Sept 30 11:30am Central	Research Trends	https://researcheracademy.elsevier.com/workshop/cdea85ae-f57b-453b-b56b-69d0b12cf6b9

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Recap Workshop 2:
Key Institutional Metrics

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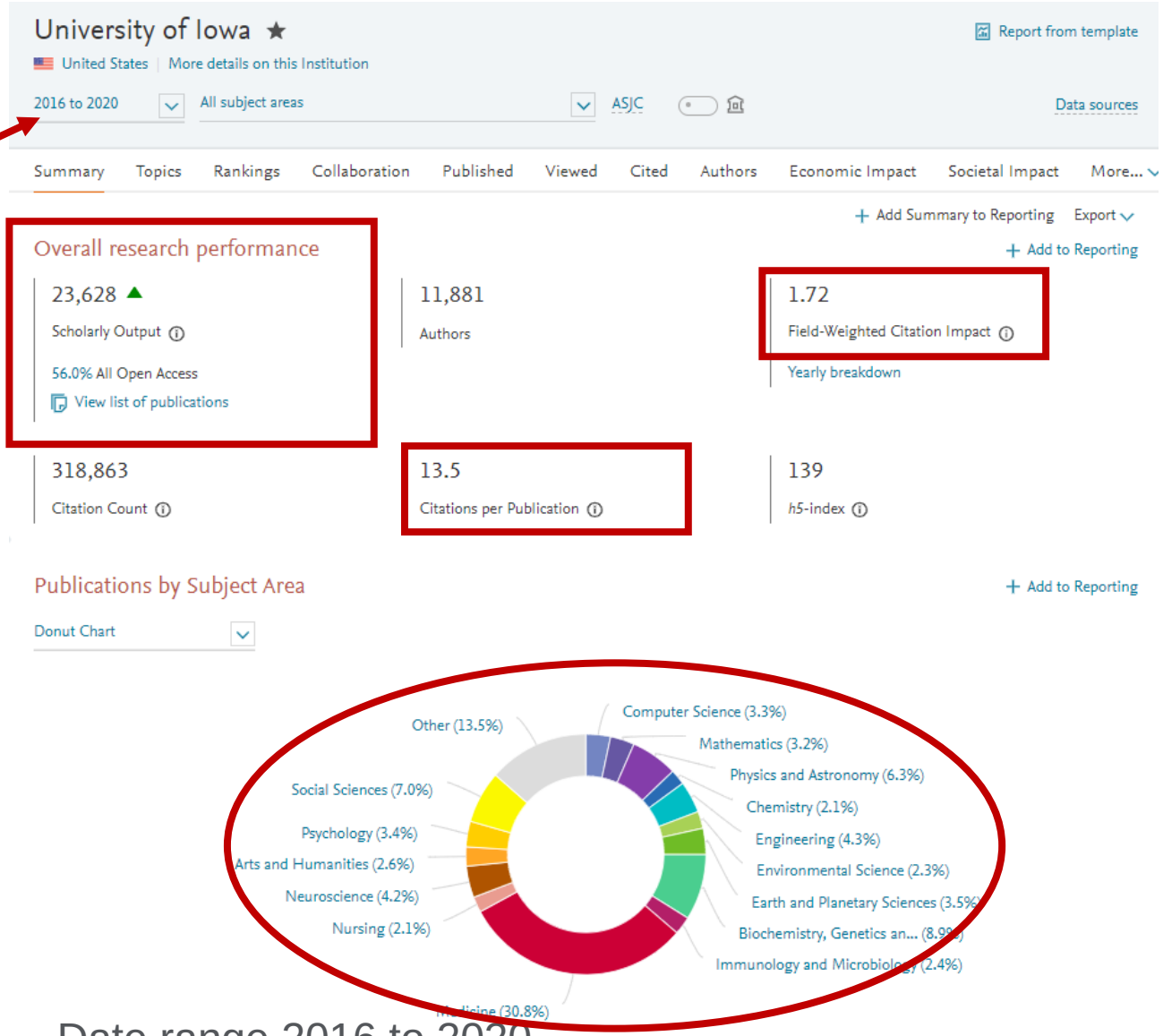
Key metrics in SciVal Overview



1. Scholarly Output
2. Field Weighted Citation Impact (FWCI)
3. Citations per publication
4. Publications by subject area

Date range 2016 to 2020

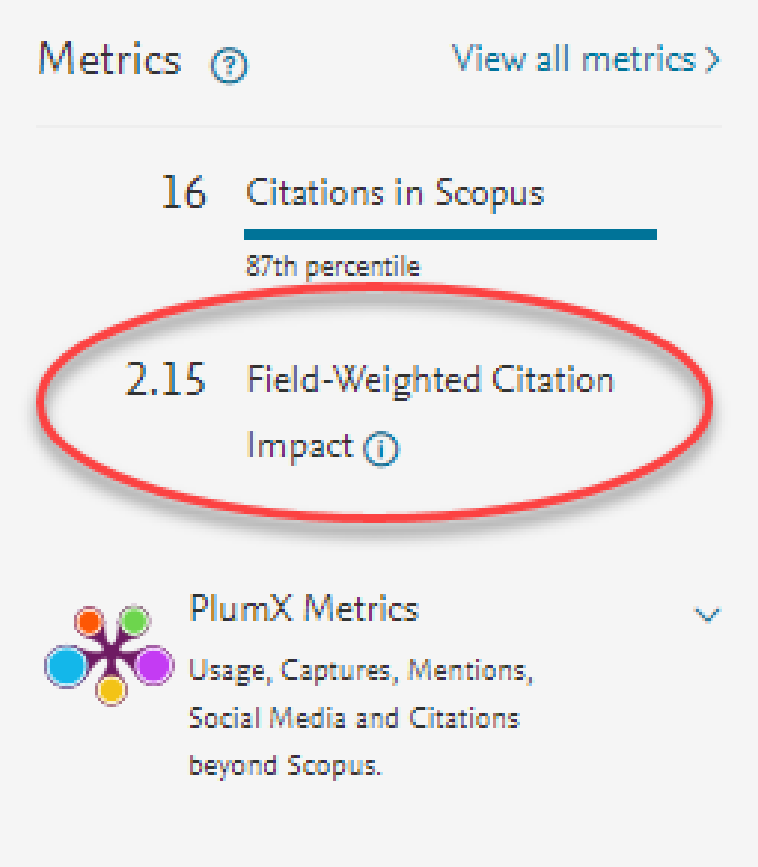
Field-weighted Citation Impact (FWCI)

A Snowball publication metric

Actual citation count relative to the expected world citation count

Field-Weighted Citation Impact shows how well cited this article is when compared to similar articles. A FWCI greater than 1.00 means the article is more cited than expected according to the average. It takes into account:

- The year of publication
- Document type, and
- Disciplines associated with its source



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Key metrics in SciVal Overview (continued)

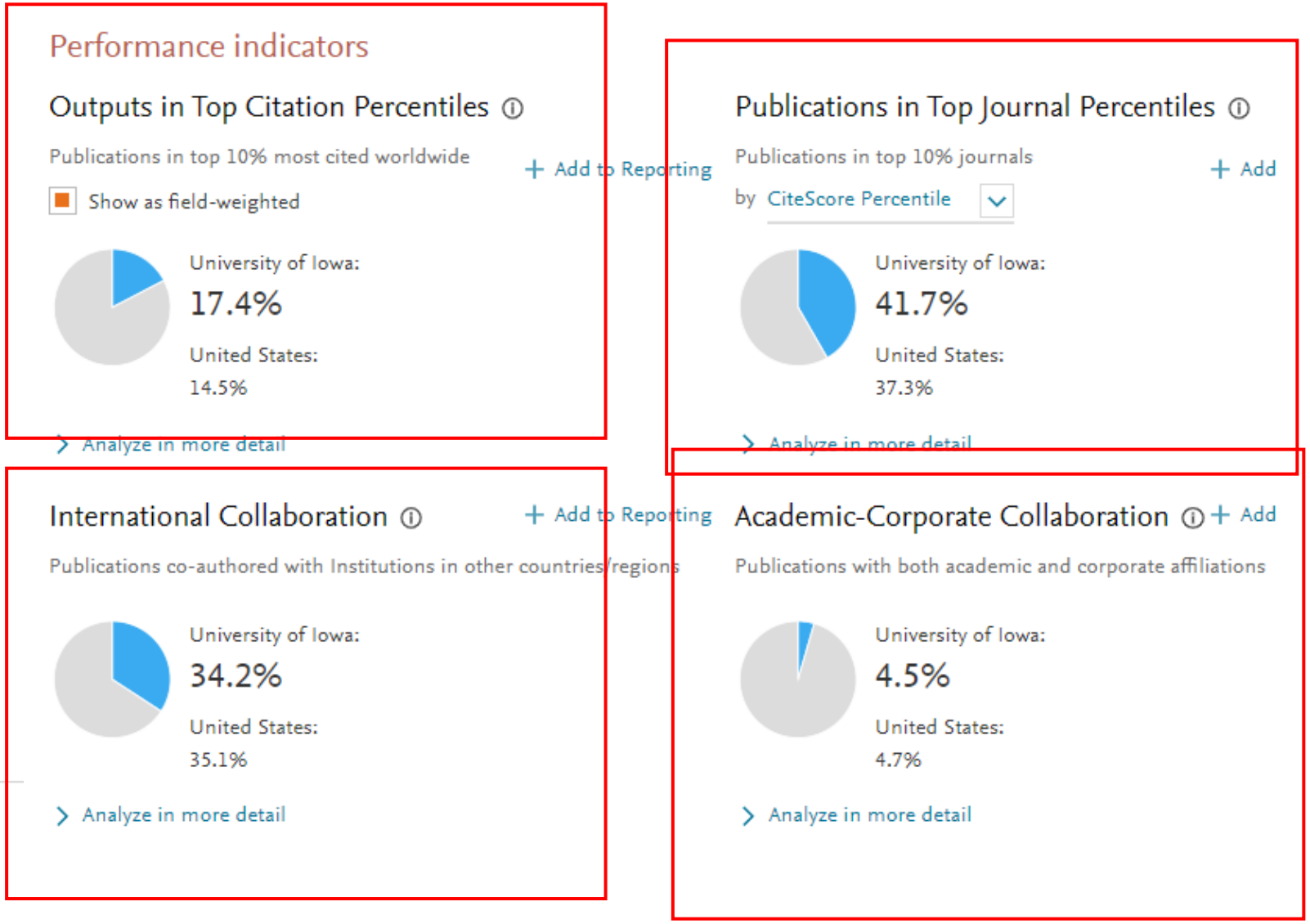
1. Outputs in top citation percentiles
   How cited is this work?

2. Publications in Top Journals percentiles (CiteScore and SNIP)

   A proxy for prestige – where was the work published?

3. International collaboration

4. Academic-Corporate Collaboration



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Discover the suite of metrics

The array of metrics through SciVal

F. Qualitative input

Metric theme	Metric sub-theme	Metrics in SciVal	
A. Funding	Awards	• Awards Volume	

B. Outputs	Productivity of research outputs	• Scholarly Output
		  • Number, Type and Growth
		  • Subject Area Count	

	Visibility of communication channels	• Publications in Top Journal Percentiles	
C. Research Impact	Research influence	• Citations Count • Field-Weighted Citation Impact • Outputs in Top Citations Percentiles • Citations per publication • Cited publications • *h*-indices	• Number of citing countries • Views Count • Outputs in Top Views Percentiles • Views per Publication • Field-Weighted Views Impact
	Knowledge transfer	• Academic-Corporate Collaboration • Citing-Patents Count • Patent-Cited Count	
D. Engagement	Academic network	• Collaboration • Collaboration Impact	
	Non-academic network	• Academic-Corporate Collaboration • Academic-Corporate Collaboration Impact	
	Expertise transfer	• Academic-Corporate Collaboration • Citing-Patents Count • Patent-Cited Count	
E. Societal Impact	Societal Impact	• Academic-Corporate Collaboration • Citing-Patents Count • Patent-Cited Scholarly Output	• Patent-Citations Count • Mass Media • Media Exposure • Field-Weighted Mass Media

Authorship analysis

Ryckman, Kelli K.

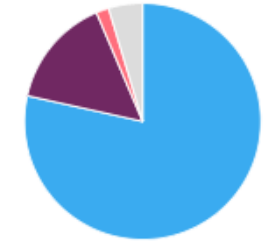
Scopus author ID: 14020601100 | View in Scopus ↗ | Why do the metrics look different to those in Scopus? ↗

Add to panel > Analyze in more detail

Scholarly Output	Citation Count	Citations per Scholarly Output	*h*-index	*h5*-index
161	2,917	18.1	29	14

View list of publications

Scholarly Output by **Institution**



- University of Iowa (78.5%)
- Vanderbilt University (15.1%)
- Unknown institution (1.7%)
- Other (4.7%)

Scholarly Output by **Subject Area**

- Pediatrics, Perinatolog... (15.8%)
- Obstetrics and Gynecolo... (15.5%)
- Genetics (6.1%)
- Other (62.7%)

Scholarly Output by **Scopus Source**

- Pediatric Research (8.1%)
- Journal of Perinatology (7.5%)
- PLoS ONE (6.2%)
- Other (78.3%)

Two Golden Rules for using research metrics

Always use both qualitative and quantitative input into your decisions

Benefit from the strengths of both approaches. Don't replace one with the other

Combining both approaches = **closer to the whole story**

Valuable intelligence comes when these approaches **show different messages**

Always use more than one research metric as the quantitative input

One metric's strengths can **complement** the weaknesses of others

There are many different ways of being excellent

Using multiple metrics drives desirable changes in behaviour (harder to game)

Can you tell me how Department X performs compared to peers/other depts/the university?

1. Define the question clearly:

   productivity, impact, interdisciplinarity, collaboration?

2. Select appropriate metrics for the particular situation

   does size matter? what are you trying to measure, how many metrics?

3. Calculate metrics for the entities you are investigating

   choose options, time frame, other parameters

4. For suitable peers so you can benchmark performance

   ask for peer list, often varies by department, school or discipline

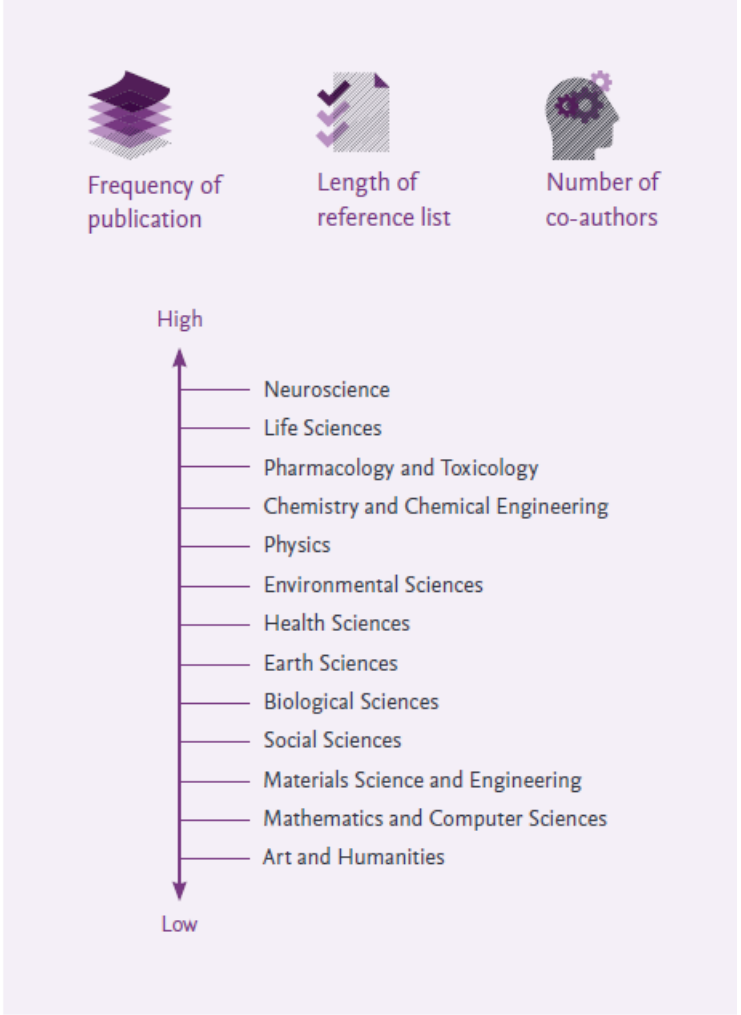


Figure 1: The characteristic behavior of academics differs between disciplines

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	Size-normalized?	Field-normalized?	Publication-type normalized?	Resistant to data-base coverage?	Difficult manipul
Academic-Corporate Collaboration					
Academic-Corporate Collaboration Impact					
Awards Volume					
Citation Count					
Citations Per Publication					
Cited Publications					
Citing-Patents Count					
Collaboration					
Collaboration Impact					
Field-Weighted Citation Impact					
Field-Weighted Mass Media					
Field-Weighted Views Impact					
h-indices					
Mass Media					
Media Exposure					
Number of Citing Countries					
Outputs in Top Citation Percentiles					
Outputs in Top Views Percentiles					
Patent-Citations Count					
Patent-Citations per Scholarly Output					
Patent-Cited Scholarly Output					
Publications in Top Journal Percentiles					
Scholarly Output					
Scopus Source Title Count					
Subject Area Count					
Views Count					
Views per Publication					

Table 1: Characteristics of the metrics in SciVal. Those metrics that have "Size-normalized" column are size-normalized when the "Percentage" c not when the "Total value" option is selected.

Trends Reporting My SciVal Scopus ↗ LG

SciVal Support Center ↗

What's new in SciVal ↗

1 *release since you've looked at this page*

Quick Guide to SciVal

クイックレファレンスガイド（日本語）

SciVal 快速上手指南 (繁體中文)

SciVal 快速使用指南 (简体中文版)

Research Metrics Guidebook

SciVal Usage and Patent Metrics Guidebook

THE and QS Rankings Data Guidebook

Add new

- *g*-index is a variant of the *h*-index that emphasizes the most highly cited papers in a data set. The *h*-index does not give extra weighting to the most-cited publications of a data set that are likely the ones that are responsible for an entity's prestige; *g*-index can be used if this feature of the *h*-index is seen as a weakness. The *g*-index is always the same as or higher than the *h*-index.

- The total number of citations received, or Citation Count, sets the other limit for the value of the h-index. If a researcher has 100 publications which have each received 0 or 1 citations, their *h*-index also cannot exceed 1.

- Be used for a related group of metrics, each with their own strengths

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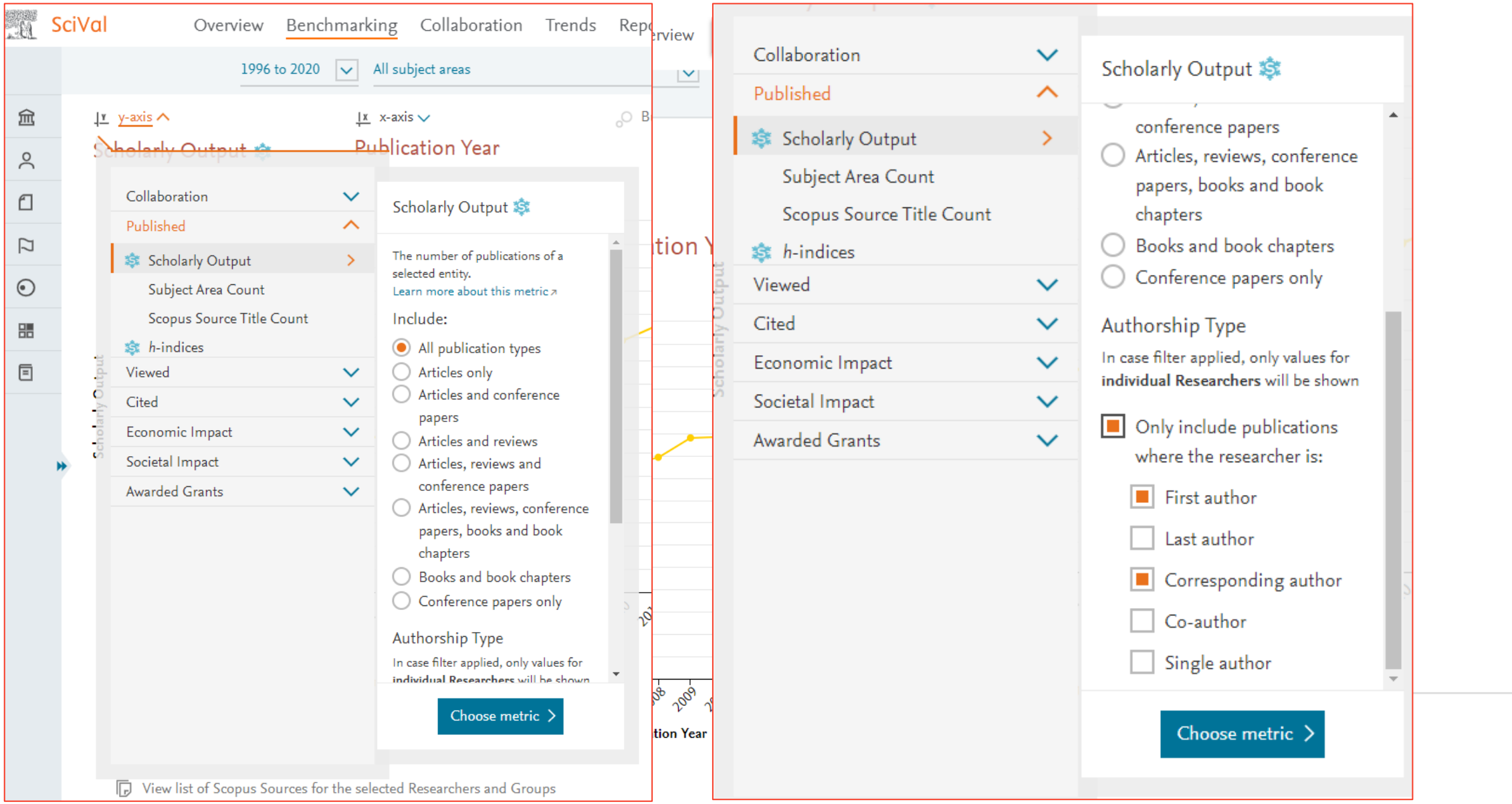
Many choices within metrics selection…



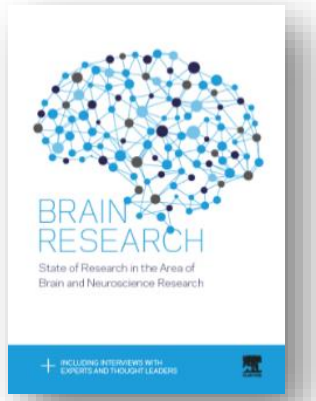
Research metrics

LEIDEN MANIFESTO

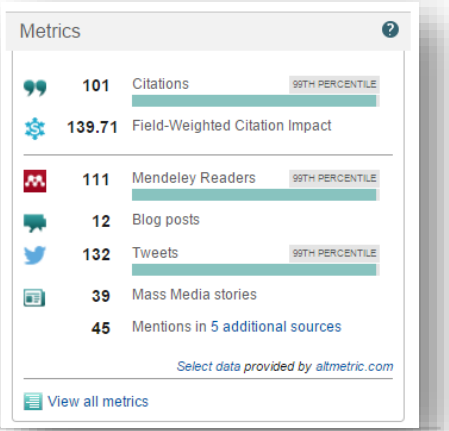
Take a common sense approach

- Need to use different metrics and common sense
  - Decisions should be based on both quantitative and qualitative input
  - Should always use at least two metrics (more than one way to ‘excellence’)
- The methodologies should be open, transparent, valid and replicable
- Definitions should be owned by the community
  - Need trust between the parties using metrics to evaluate

newsflo
bespoke media monitoring



PLUMX



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The H-index /Hirsch index or Hirsch number

The H-index is a metric to measure the scientific productivity and the impact of the published work of a specific scientist

In other words:

A scholar has an index of 13

if he has published at least 13 papers

each of which has been cited at least 13 times.

Invented by Prof. Jorge E. Hirsch in August 2005

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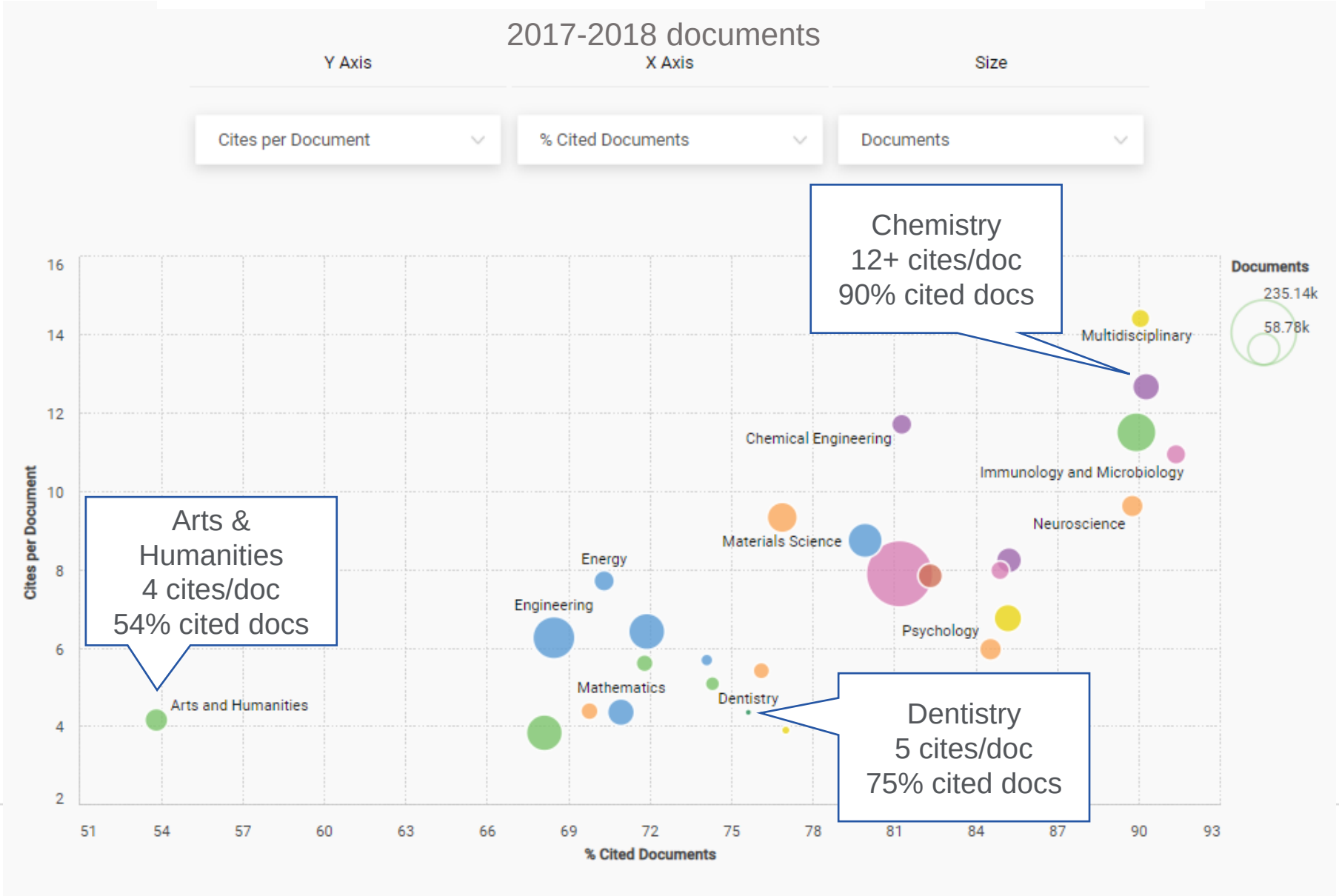
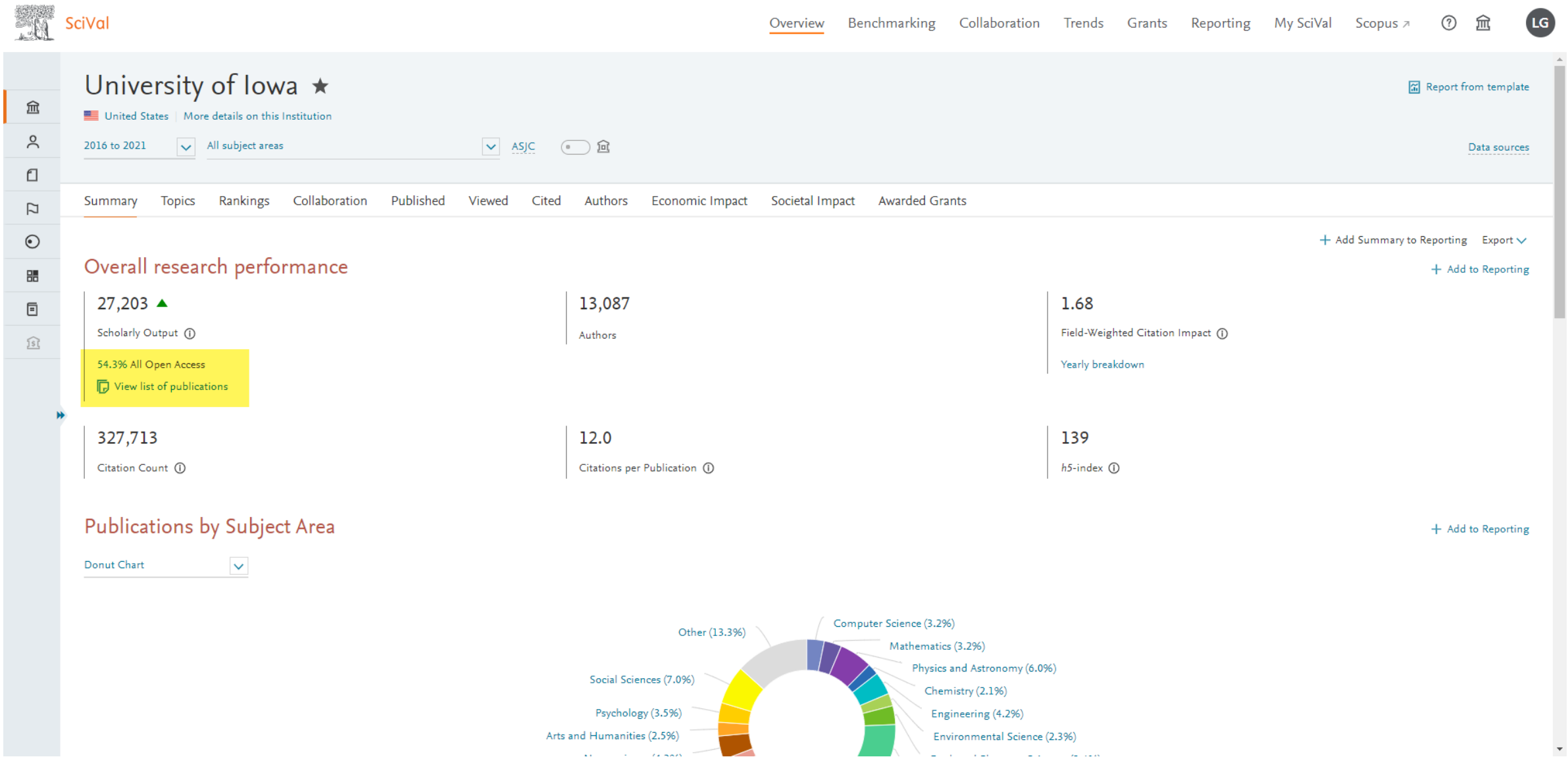
Disciplinary Differences in Citation Practices



https://www.scimagojr.com/ 2 Feb 2021

Analyze Open Access Documents



Benchmark research group using array of metrics: Live demo

Introducing Topic Prominence

University of Iowa ★

United States | More details on this Institution

Report from template

2016 to 2021 | All subject areas | ASJC

Data sources

Topics & Topic Clusters

Metric guidance | + Add to Reporting | Export

Between 2016 to 2021, researchers at the University of Iowa have contributed to:

- 1,196 Topic Clusters | Learn about Topics and Topic Clusters ↗
- 8,991 Topics
  - only show the 330 Key Topics for this Institution

Table | Wheel | All Topics | Search

Add to panel | Create Research Area

Topic	At this Institution: Scholarly Output	At this Institution: Publication Share	At this Institution: Field-Weighted Citation Impact	Worldwide: Prominence percentile
Top Quark; Partons; Higgs Bosons T.1026	731	23.90% ▲	3.88	99.789
Radiation Belts; Hiss; Whistler T.972	151	11.63% ▼	1.51	96.569
Mars Atmosphere; Ionospheres; Mars T.3690	141	25.13% ▼	1.12	91.988
Jupiter; Magnetospheres; Saturn T.2092	130	21.67% ▲	1.24	92.833
Huntington Disease; Chorea; Apathy T.4010	100	12.99% ▼	1.41	94.397
Operating Rooms; Scheduling Problem; Planning and	94	9.31% ▲	1.07	94.797

Topic Prominence in Science:
Moving beyond evaluation and benchmarking to research planning and analysis

…Help users

Answer the question “What are we good at?”

Recognize pockets of **well funded research** in the **research portfolio**

Find the **top performers** and **rising stars** in specific fields for recruitment, tenure and collaboration

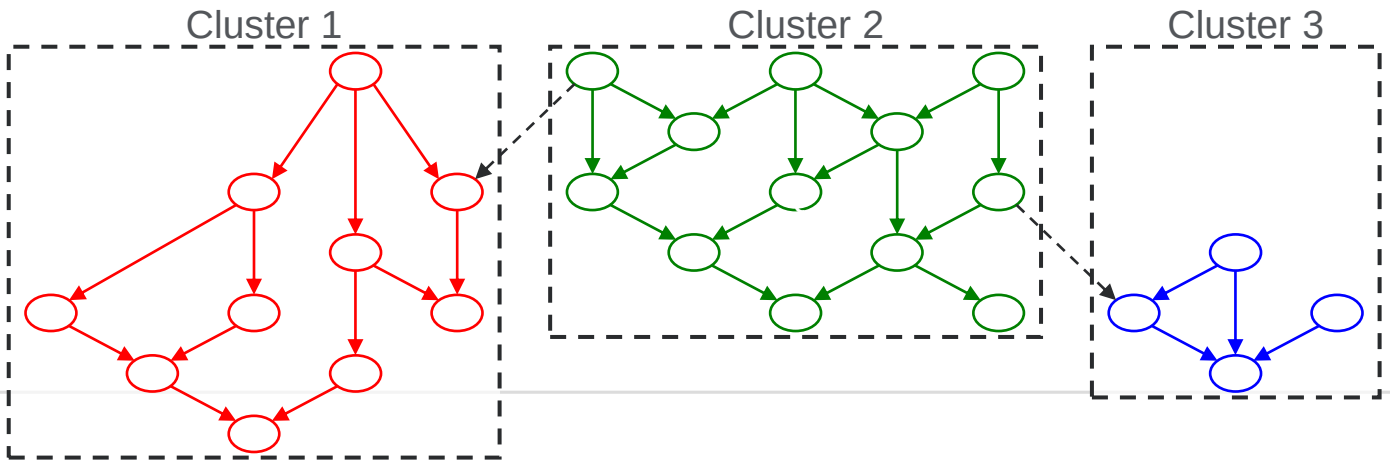
Showcase activity in topics with high momentum

Identify which topics other researchers and universities are active in

…and uncover the impact

How are “Topics” identified

- All Scopus publications are clustered into topics using citation links
- ~46 million publications (1996-present) in ~96,000 topics
- Clustering is done using algorithms that
  - Divide the documents into groups
  - Have a resolution parameter where increasing the resolution increases the number of clusters and reduces cluster sizes
  - Maximize the links within clusters and minimize the links between clusters



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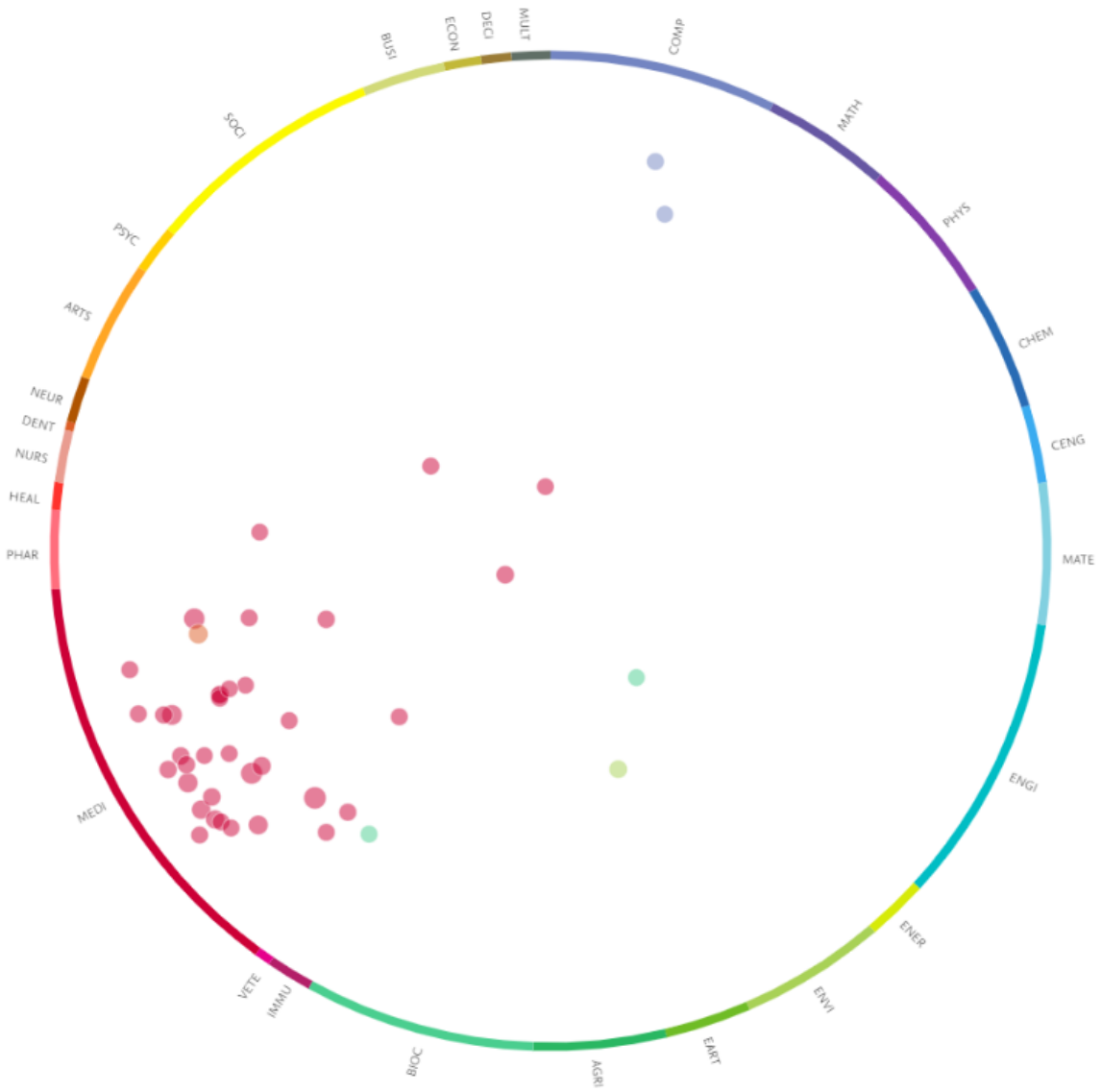
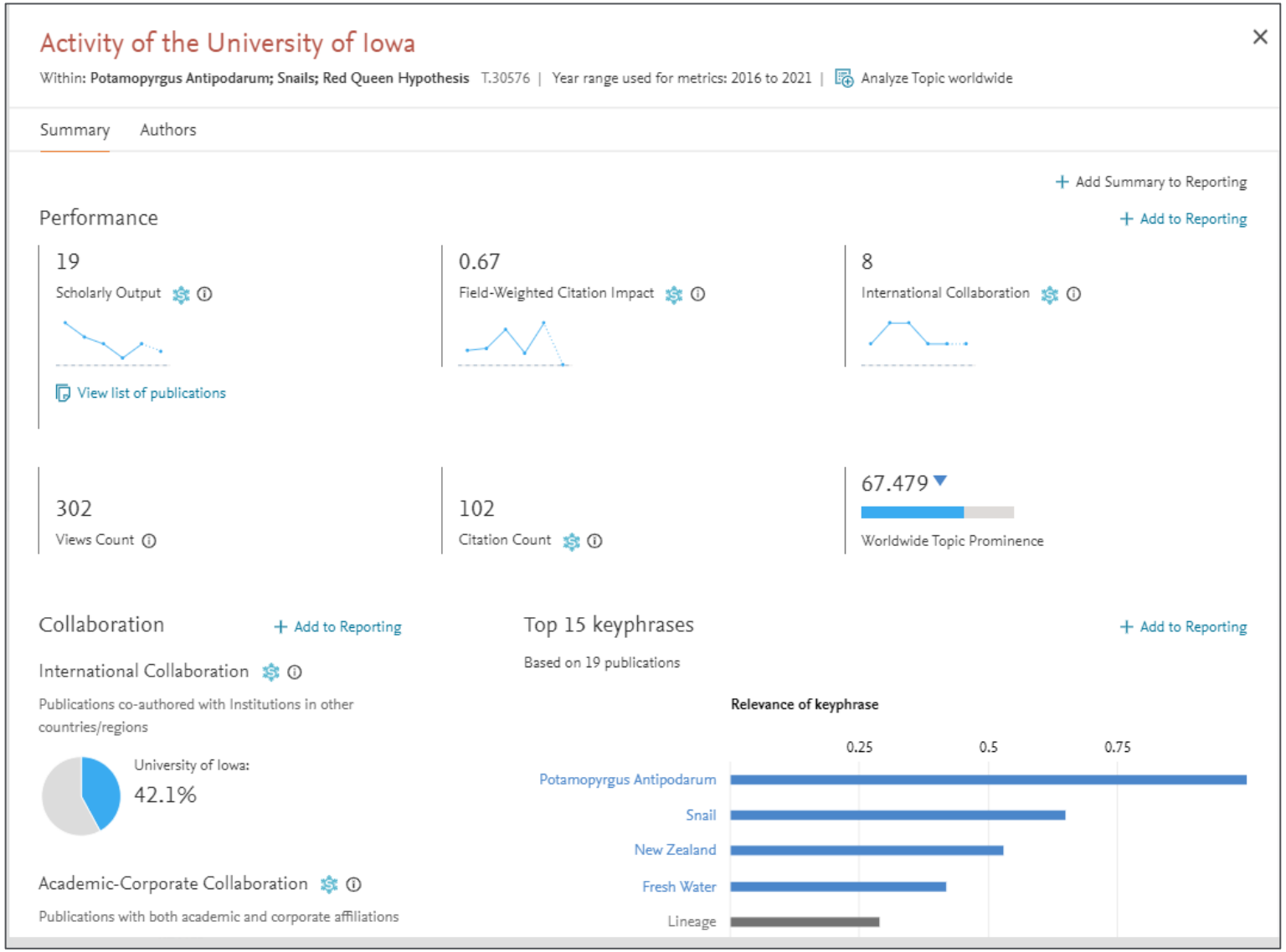
New Topics

Every 2 years we rerun the SciVal Topics algorithm to identify newly emerged Topics.

In 2021 we identified and added 112 new Topics to SciVal. New Topics represent areas of research that have seen a significant growth acceleration in recently published articles and have attracted recent funding.

New Topics are derived from existing parent Topics, and are formed by new citation relationships that have occurred in the past year. [Learn more about the methodology]

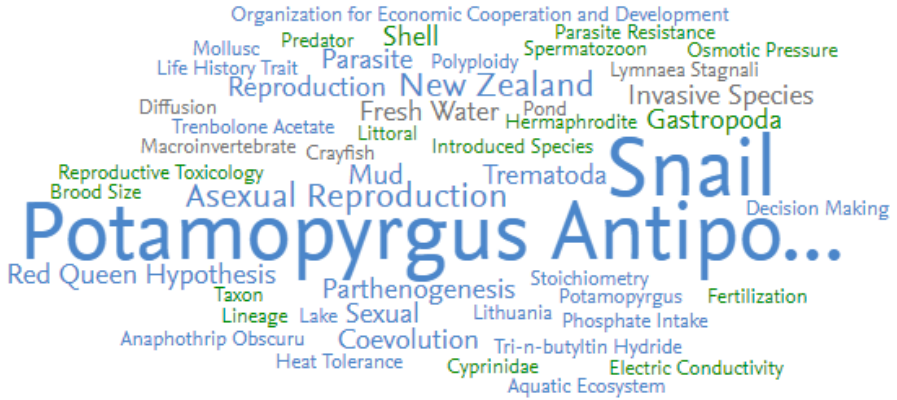




SciVal

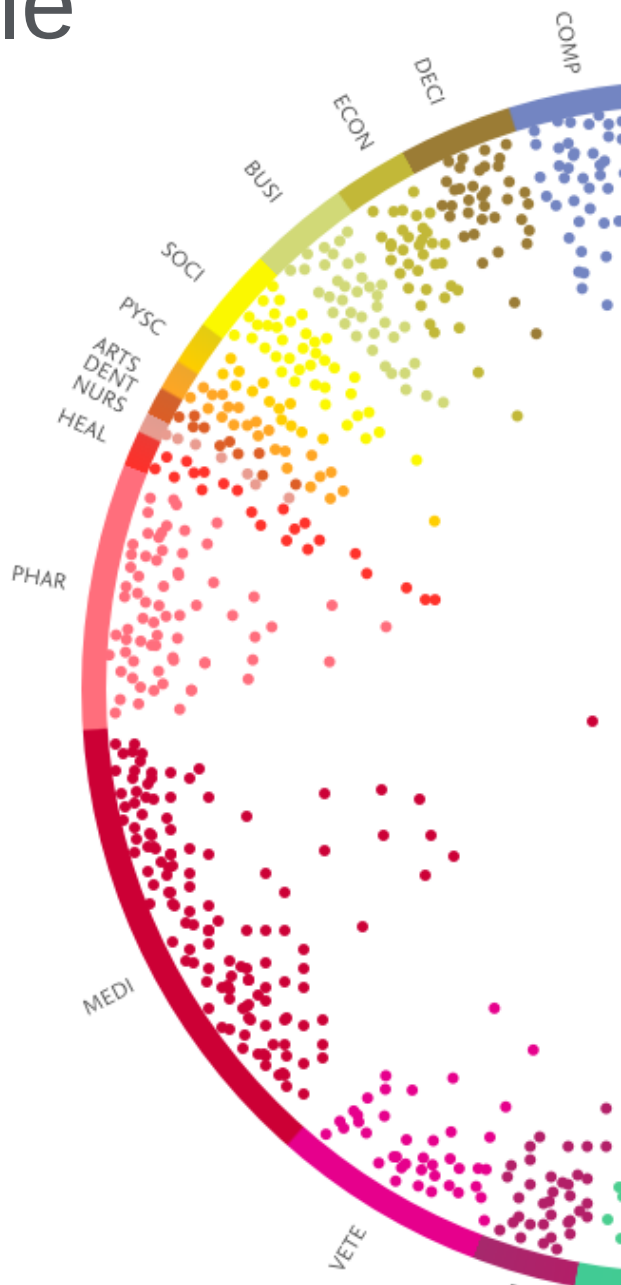
Top 10 US Institutions

University of Iowa
University of Wyoming
Indiana University Bloomington
Pennsylvania State University
Colorado State University
University of St. Thomas
Emory University
Texas Tech University
University of California at Berkeley
University of California at San Diego



Topic Prominence - prominence percentile

- We have identified **~96,000 global research topics by clustering all of Scopus** and ranked them by **Prominence.**
- **Prominence is an indicator** that shows the **current momentum** of a topic by looking at **very recent citations**, **views** and **CiteScore** values.
- **Prominence = momentum** (not the same as importance!).
- **Prominence predicts funding** – more funding/researcher for prominent topics



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Identify institutional research strengths

SciVal

Overview | Benchmarking | Collaboration | Trends | Grants | Reporting | My SciVal | Scopus ↗ | LG

2016 to 2021 | All subject areas

Topics & Topic Clusters

Metric guidance | + Add to Reporting | Export

Between 2016 to 2021, researchers at the University of Iowa have contributed to:

- 1,196 Topic Clusters | Learn about Topics and Topic Clusters ↗
- 8,991 Topics
  - only show the 330 Key Topics for this Institution

Table | Wheel | Top 25% of worldwide Topics by Prominence | Search

Add to panel | Create Research Area

		At this Institution			Worldwide
Topic	Scholarly Output	Publication Share	Field-Weighted Citation Impact	Prominence percentile
Top Quark; Partons; Higgs Bosons T.1026	731	23.90% ▲	3.88	99.789
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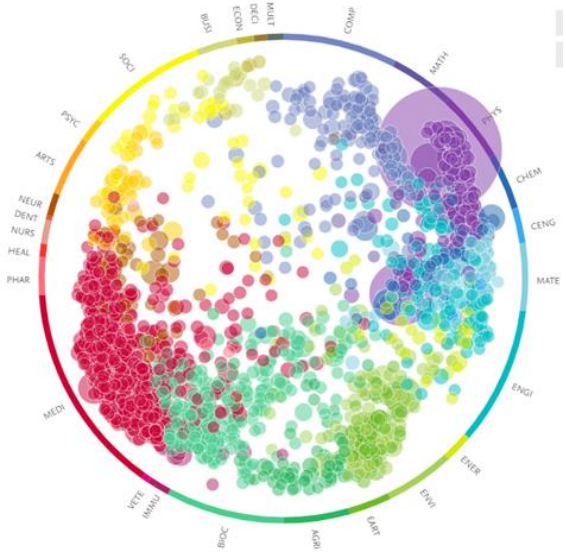
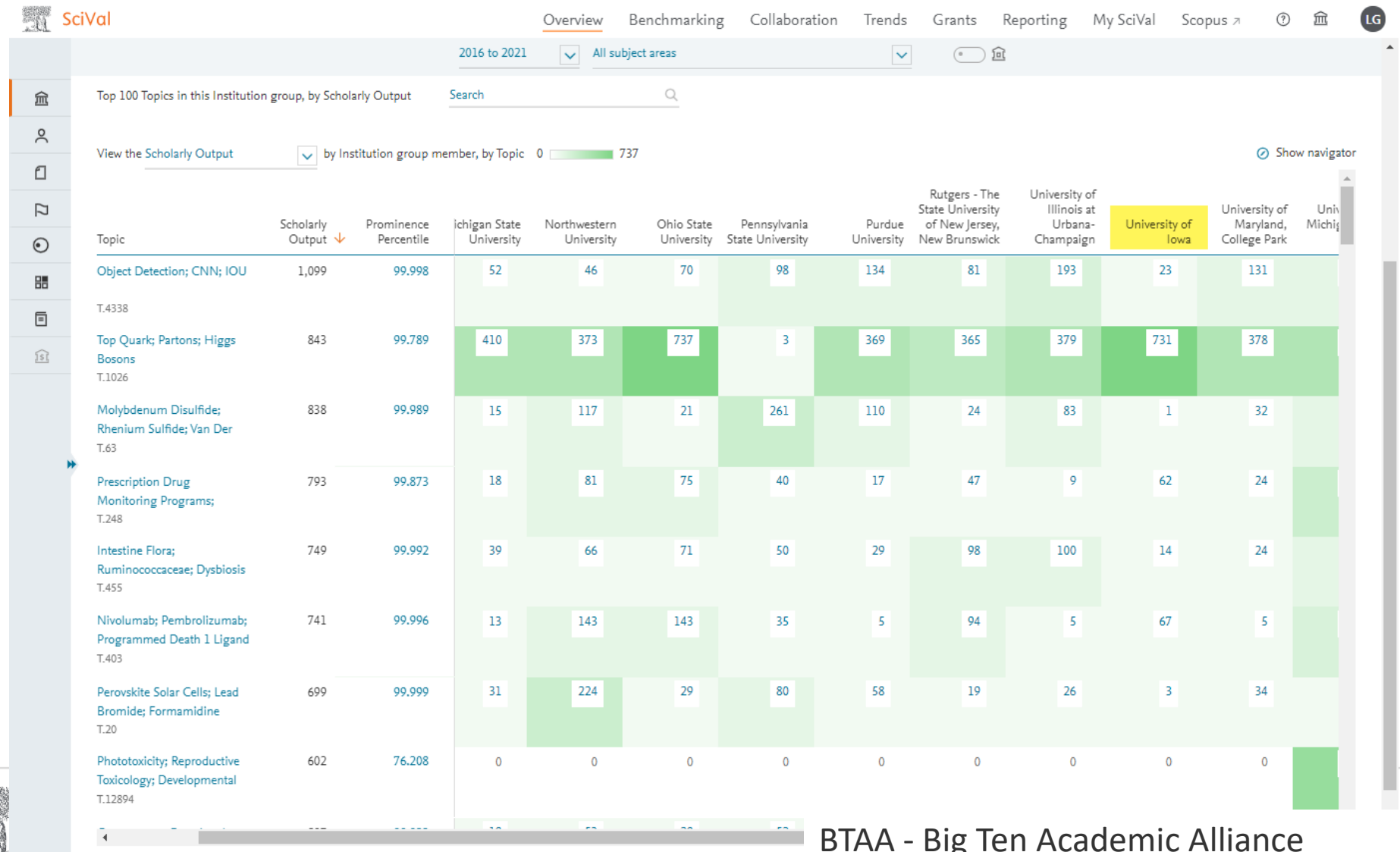


Top 25% Key Topics for University of Iowa, 2015-2020

Compare institutions' research strengths



Topic	Scholarly Output	Prominence Percentile	ichigan State University	Northwestern University	Ohio State University	Pennsylvania State University	Purdue University	Rutgers - The State University of New Jersey, New Brunswick	University of Illinois at Urbana-Champaign	University of Iowa	University of Maryland, College Park	Univ Michig
Object Detection; CNN; IOU T.4338	1,099	99.998	52	46	70	98	134	81	193	23	131	
Top Quark; Partons; Higgs Bosons T.1026	843	99.789	410	373	737	3	369	365	379	731	378	
Molybdenum Disulfide; Rhenium Sulfide; Van Der T.63	838	99.989	15	117	21	261	110	24	83	1	32	
Prescription Drug Monitoring Programs; T.248	793	99.873	18	81	75	40	17	47	9	62	24	
Intestine Flora; Ruminococcaceae; Dysbiosis T.455	749	99.992	39	66	71	50	29	98	100	14	24	
Nivolumab; Pembrolizumab; Programmed Death 1 Ligand T.403	741	99.996	13	143	143	35	5	94	5	67	5	
Perovskite Solar Cells; Lead Bromide; Formamidine T.20	699	99.999	31	224	29	80	58	19	26	3	34	
Phototoxicity; Reproductive Toxicology; Developmental T.12894	602	76.208	0	0	0	0	0	0	0	0	0	

BTAA - Big Ten Academic Alliance

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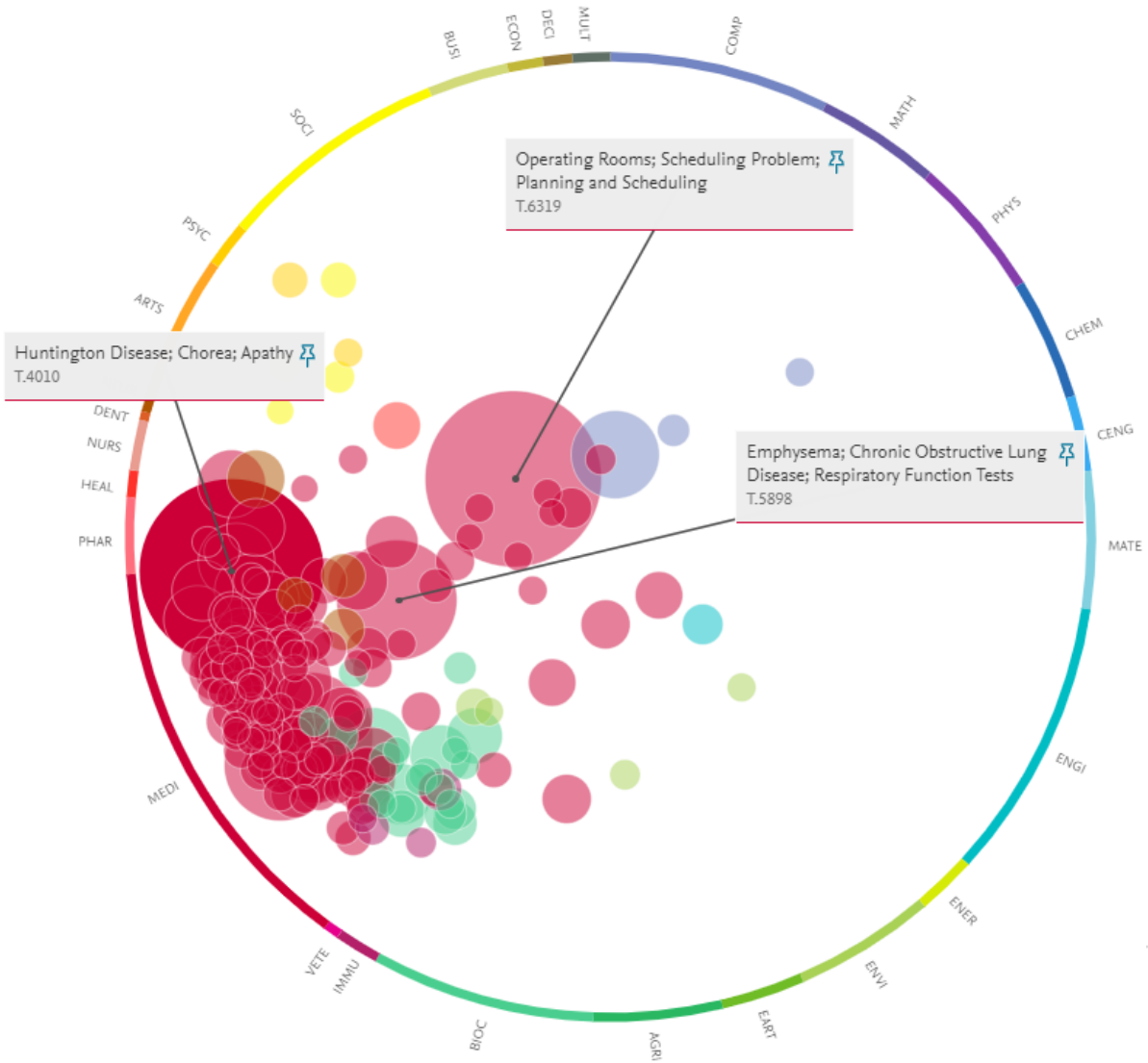
How to enhance Topic wheel graphic



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Today’s Recap

Learn about ethical application of metrics, understand most frequently used metrics and begin to use Topics.

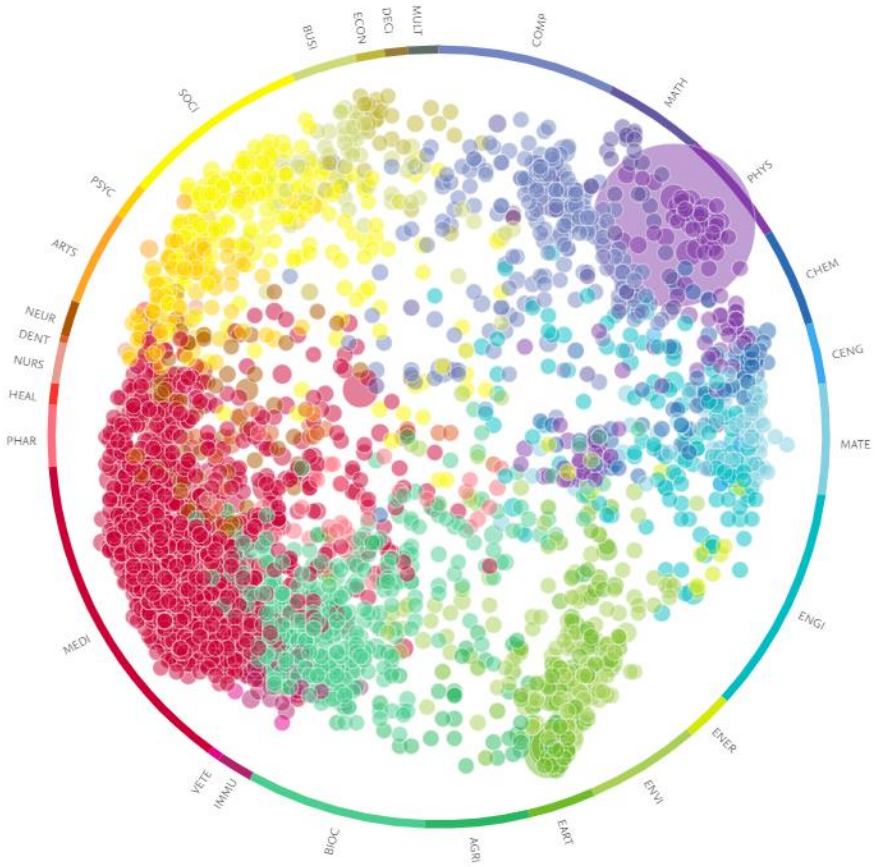
Array of metrics

- Where are they?
- Ethical application of metrics
- OA filters

What are we good at?

Introduction to Topics

Q & A

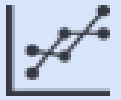


Survey link

Worshop code: MMHDBU

Recording passcode: scival2021!

SciVal – out-of-the-box analytical solution

	Gain immediate access to a comprehensive view of the world's research activities.
	View a ready-made, at-a-glance snapshot of your research performance at all levels.
	Benchmark your performance against any set of peers.
	Model/test "what if " scenarios by creating virtual teams or emerging Research Areas of interest.
	Create bespoke Publication Sets for analysis as part of grant applications and reporting.
	Establish collaborative partnerships globally.
	Track, monitor and evaluate data and information on an ongoing basis to stay up-to-date with changes.
	Analyze the trends of any research entity to help inform strategic planning and decisions.
	Help predict which high momentum Topics may be more likely to receive increased funding in the future

Thank you

Linda Galloway, l.Galloway@elsevier.com