SciVal 101: Fundamental Skills

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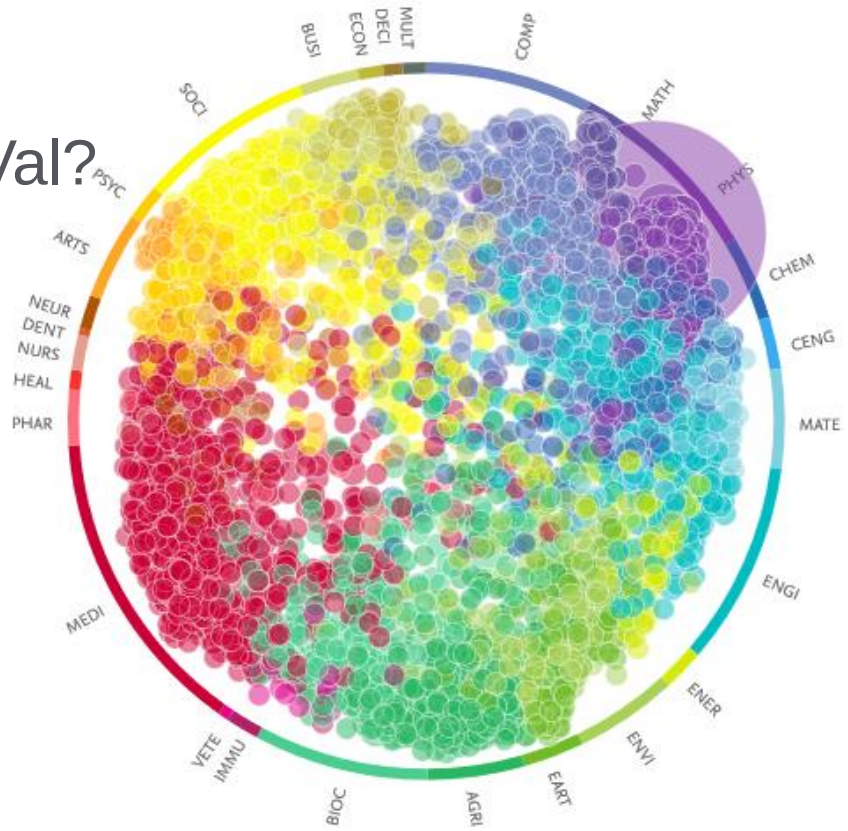
October 2019

Agenda

1. Welcome & introductions
2. Discussion – what is your experience with SciVal?
3. Brief overview
4. Data Sources
5. Metrics selection
6. Typical SciVal Uses



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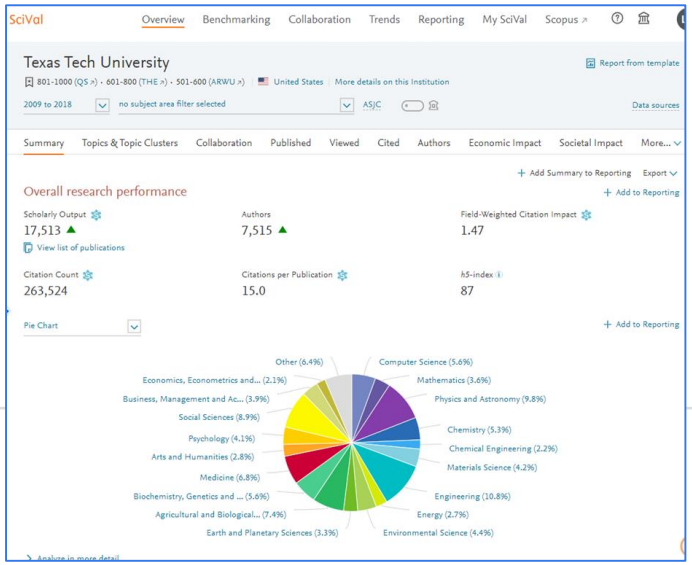
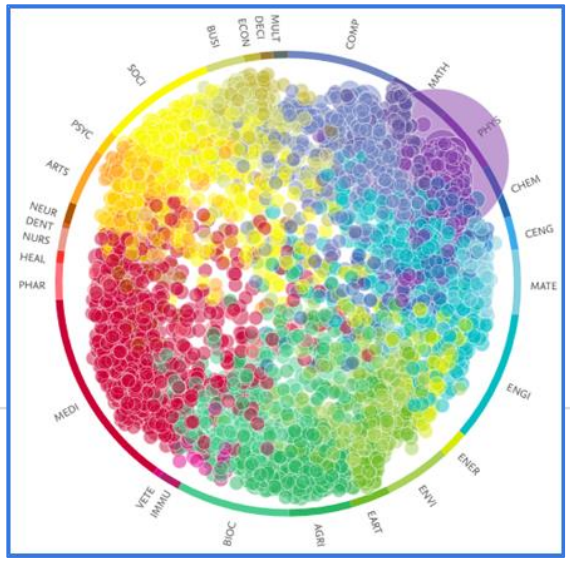
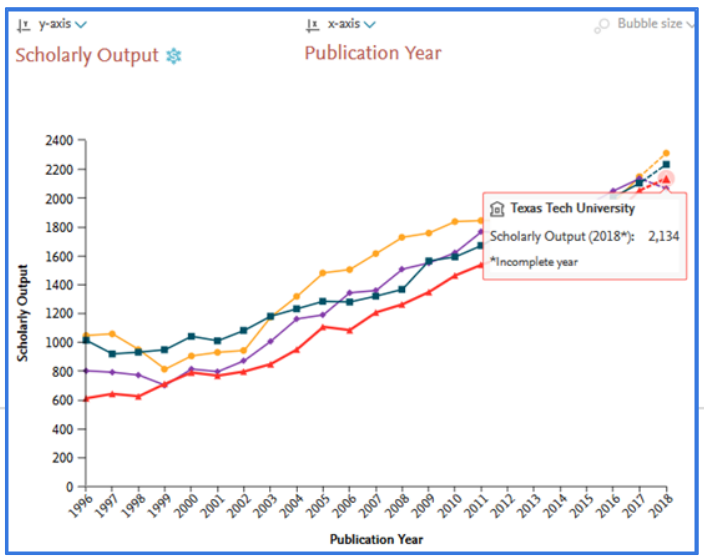
SciVal is an analytical tool that allows you to:

- Characterize research portfolio for any profiled Academic/Corporate/Government entity
- Benchmark performance against any set of peers
- Find top performers/rising stars in research fields
- Aid in research planning and analysis:
  - Pinpoint the research areas where your institution excels
  - Find out which areas your peers and competitors are active in
  - Identify research topics that are likely to be well funded







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Elsevier Research Intelligence Portfolio

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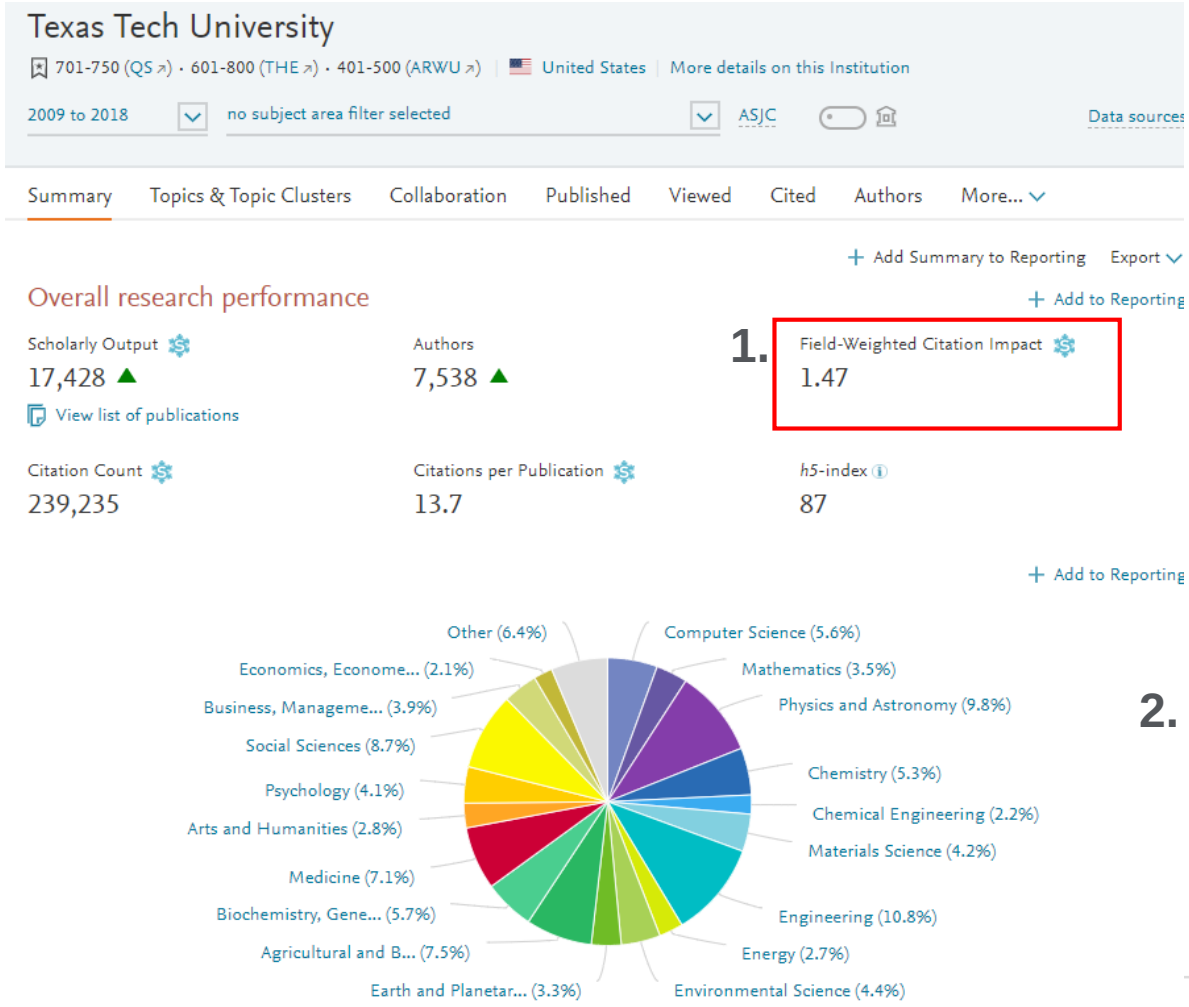
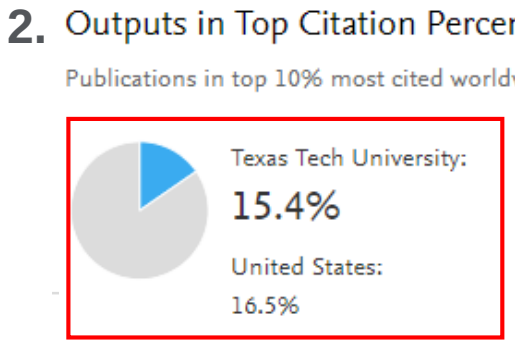
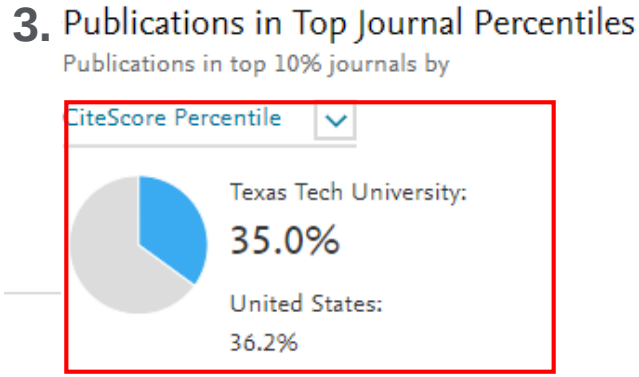
Overview Module



1. Field Weighted Citation Impact (FWCI)
2. Outputs in top citation percentiles
3. Publications in Top Journals percentiles (SNIP and CiteScore)





Date range 2009 to 2018

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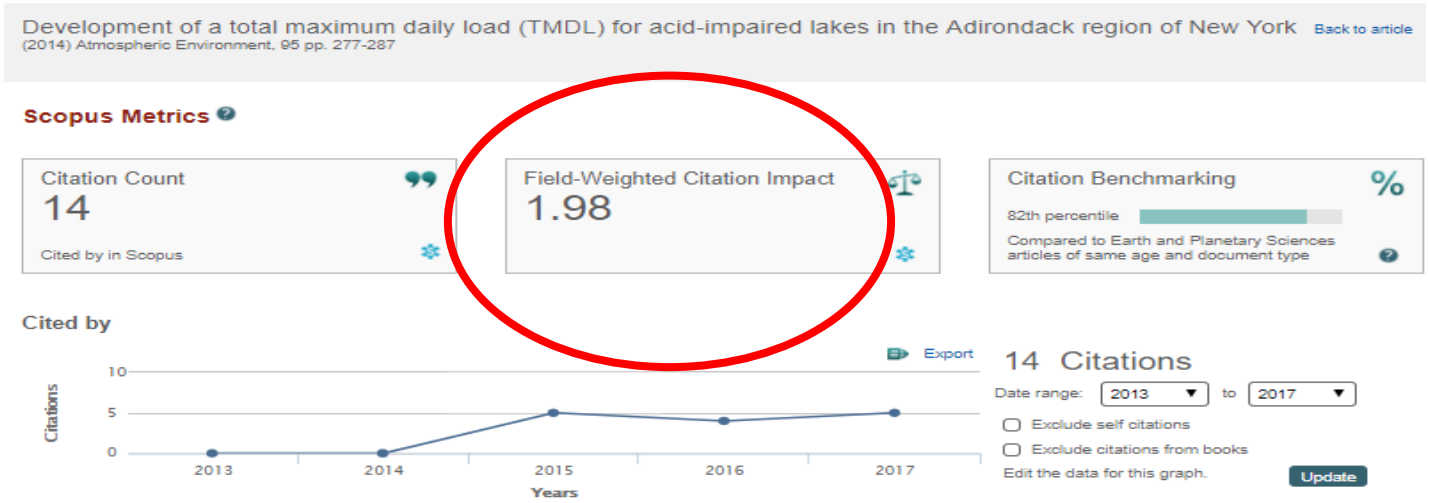
Field-weighted Citation Impact (FWCI)

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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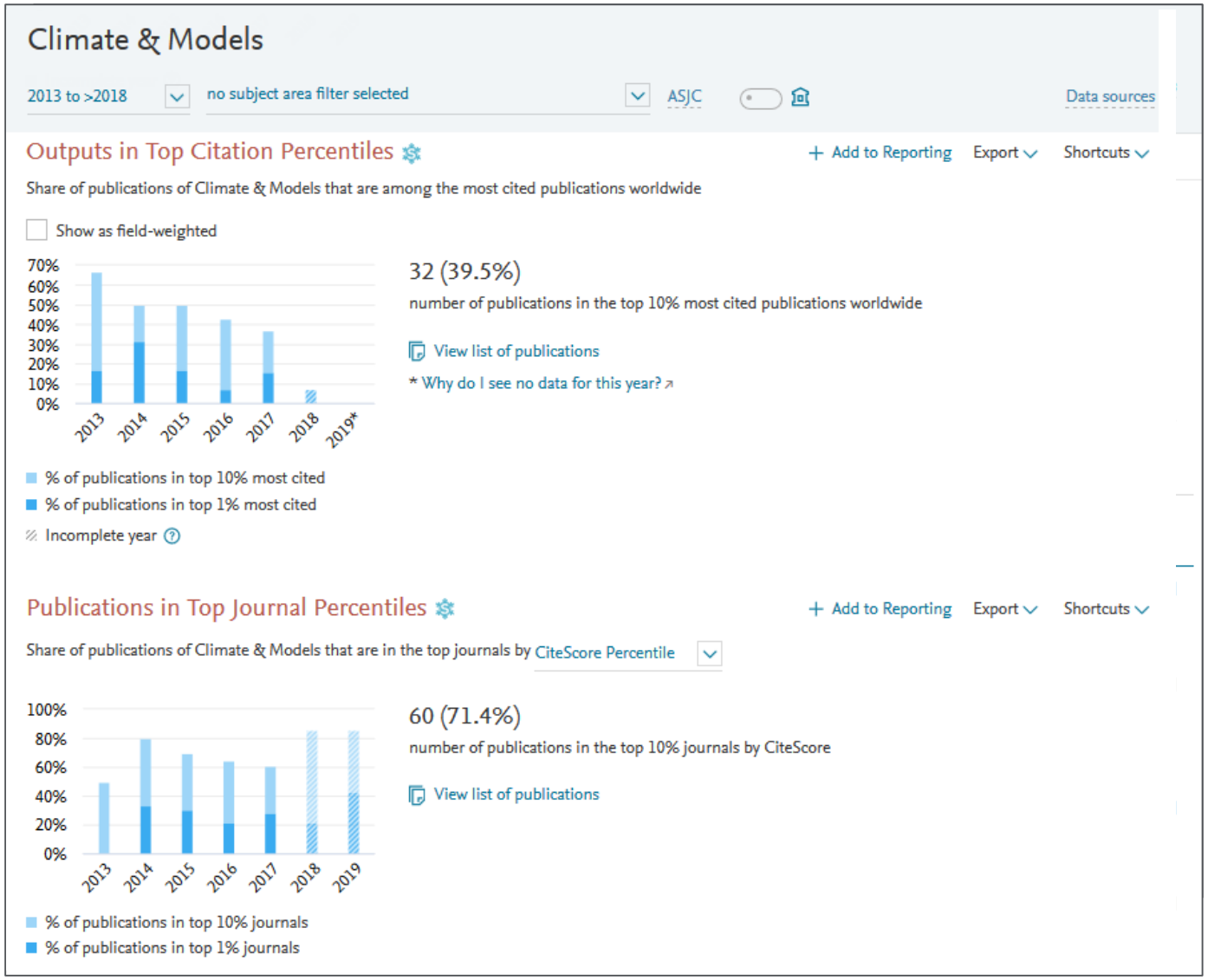
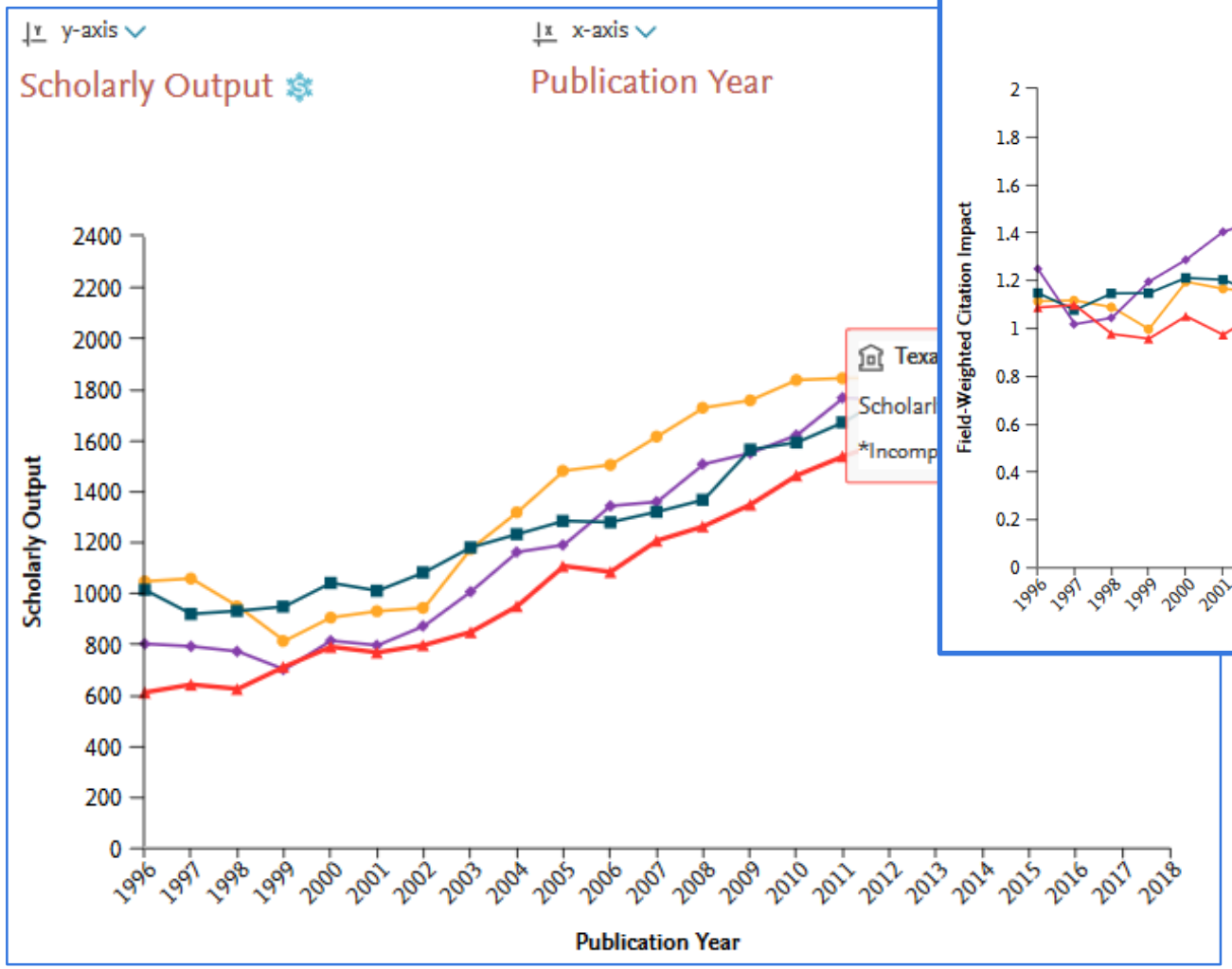
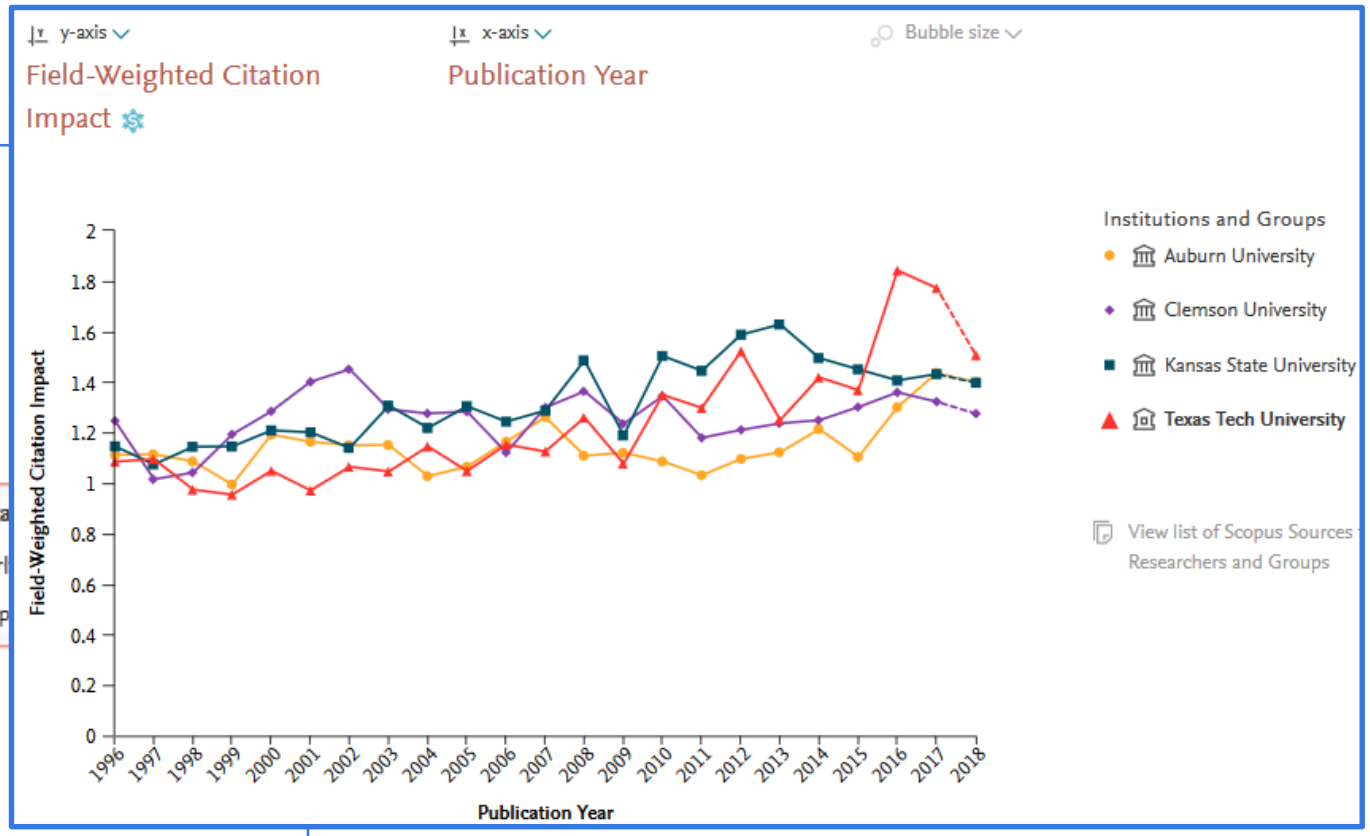
Benchmark and Analyze Research Performance for Department, Center, or any group of researchers



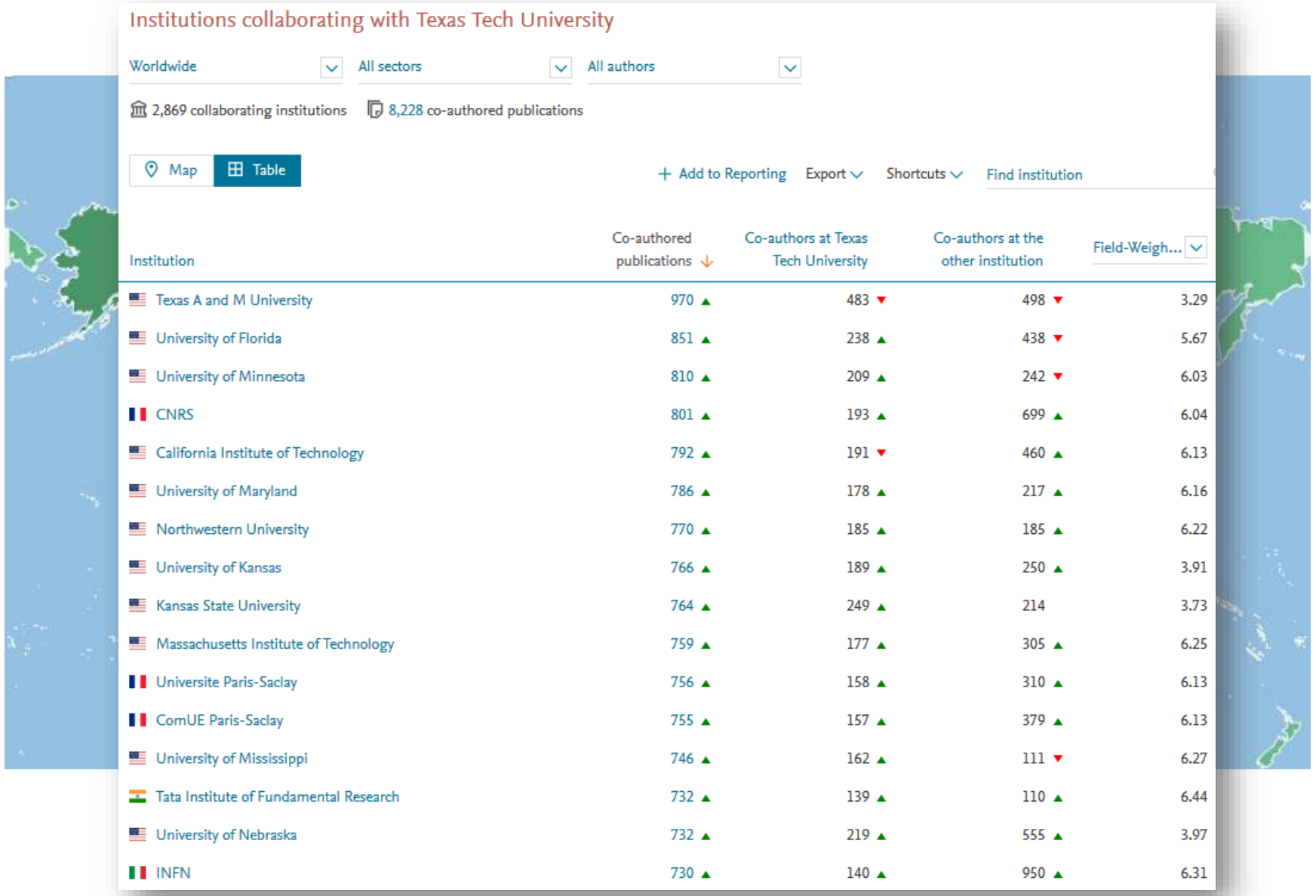
Benchmark with any set of Peers

Use multiple metrics for a multi-dimensional view





Explore and Foster Collaborations



Institutions collaborating with Texas Tech University

Worldwide | All sectors | All authors

2,869 collaborating institutions | 8,228 co-authored publications

Map | Table | + Add to Reporting | Export | Shortcuts | Find institution

Institution	Co-authored publications	Co-authors at Texas Tech University	Co-authors at the other institution	Field-Weigh...
Texas A and M University	970 ▲	483 ▼	498 ▼	3.29
University of Florida	851 ▲	238 ▲	438 ▼	5.67
University of Minnesota	810 ▲	209 ▲	242 ▼	6.03
CNRS	801 ▲	193 ▲	699 ▲	6.04
California Institute of Technology	792 ▲	191 ▼	460 ▲	6.13
University of Maryland	786 ▲	178 ▲	217 ▲	6.16
Northwestern University	770 ▲	185 ▲	185 ▲	6.22
University of Kansas	766 ▲	189 ▲	250 ▲	3.91
Kansas State University	764 ▲	249 ▲	214	3.73
Massachusetts Institute of Technology	759 ▲	177 ▲	305 ▲	6.25
Universite Paris-Saclay	756 ▲	158 ▲	310 ▲	6.13
ComUE Paris-Saclay	755 ▲	157 ▲	379 ▲	6.13
University of Mississippi	746 ▲	162 ▲	111 ▼	6.27
Tata Institute of Fundamental Research	732 ▲	139 ▲	110 ▲	6.44
University of Nebraska	732 ▲	219 ▲	555 ▲	3.97
INFN	730 ▲	140 ▲	950 ▲	6.31

Trends Module Options

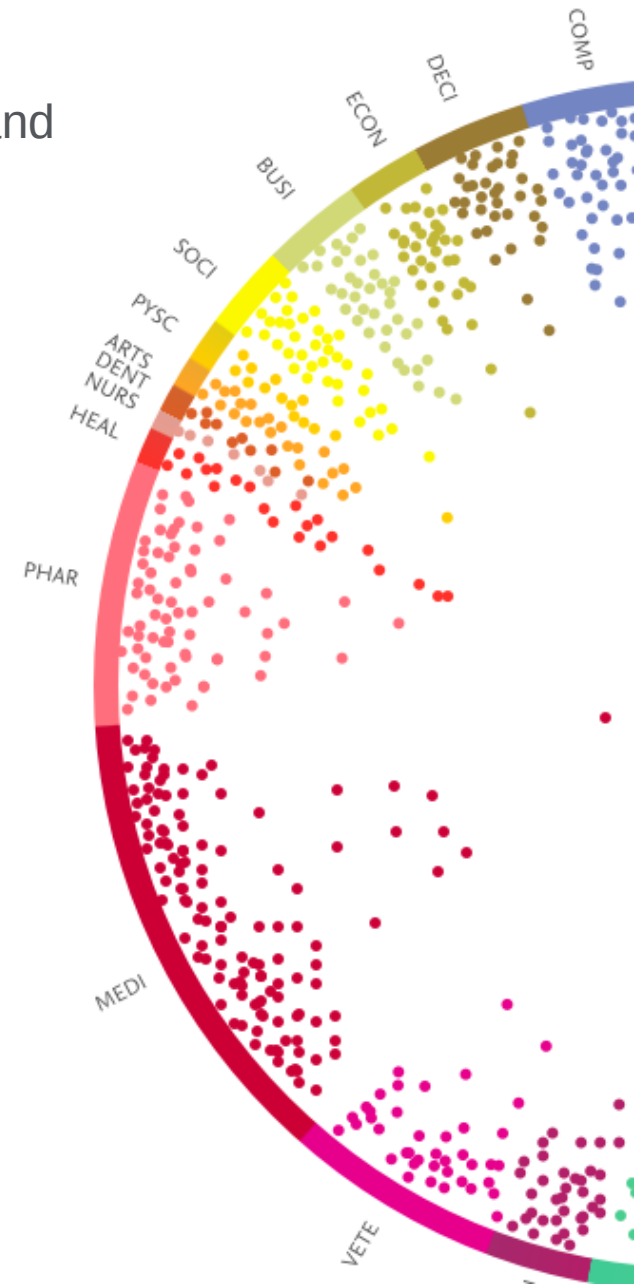
The Trends module is where you can evaluate all aspects of Topics, Research Areas and Publication Sets.
Very versatile and configurable!

Two primary ways to use Trends:

1. Topics of Prominence
   - Clustering technology that helps predict areas of well-funded research
   - Use predefined Topics or Topic Clusters OR create your own customized groups of Topics

2. Research Areas
   - Use predefined Research Areas – “Find existing Research Area”
   - Define your own “Research Area”
     - Use Search Terms, Entities or Topics
       - An ‘Entity’ can be a Country, Institution, Scopus Source (journal) OR subject areas

Define a new Research Area



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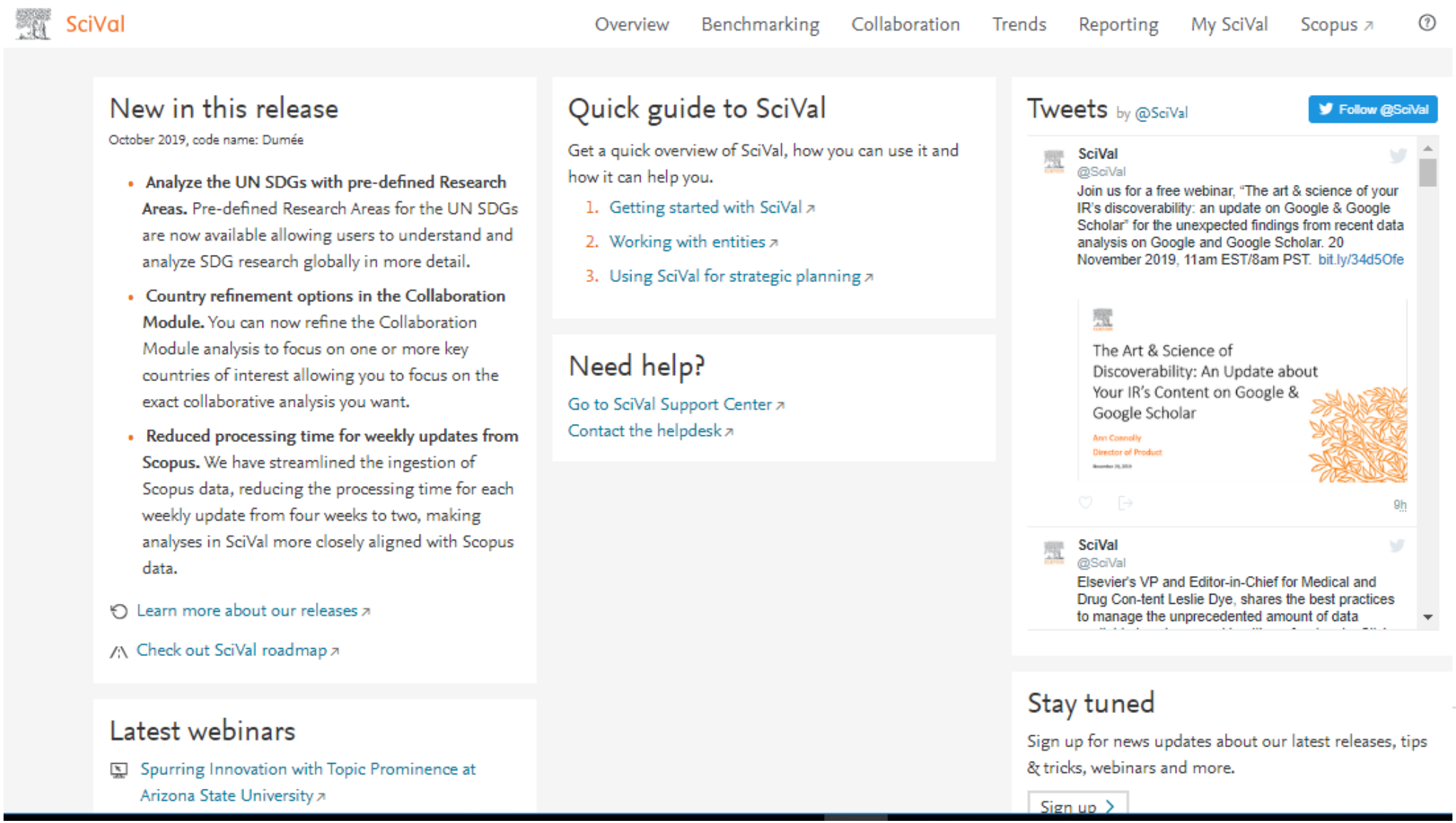
Short release cycles – iterative design

Volta: January 2019	• **Introducing Topic Clusters! Topics clustered into 1500 research areas, to aid in research planning and evaluation** • **Topics on the Scopus author pages. See the top Topic for any author in the Scopus**
Xie: March 2019	• **37 New Research Topics added** • **ID outstanding journal performance more easily** • **Further reporting enhancements**
Zeeman: May 2019	• **Reporting Templates!!** • **New Patent and Funding data streams** • **Further reporting enhancements**
Apgar: June 2019	• **Topics recalculated** • **Yearly rollover of data and yearly ranges increased** • **Quick publication set creation**
Bouman: August 2019	• **Topics for publication sets** • **New reporting templates** • **APIs – updated and additional options**

Short release cycles – iterative design



How SciVal works

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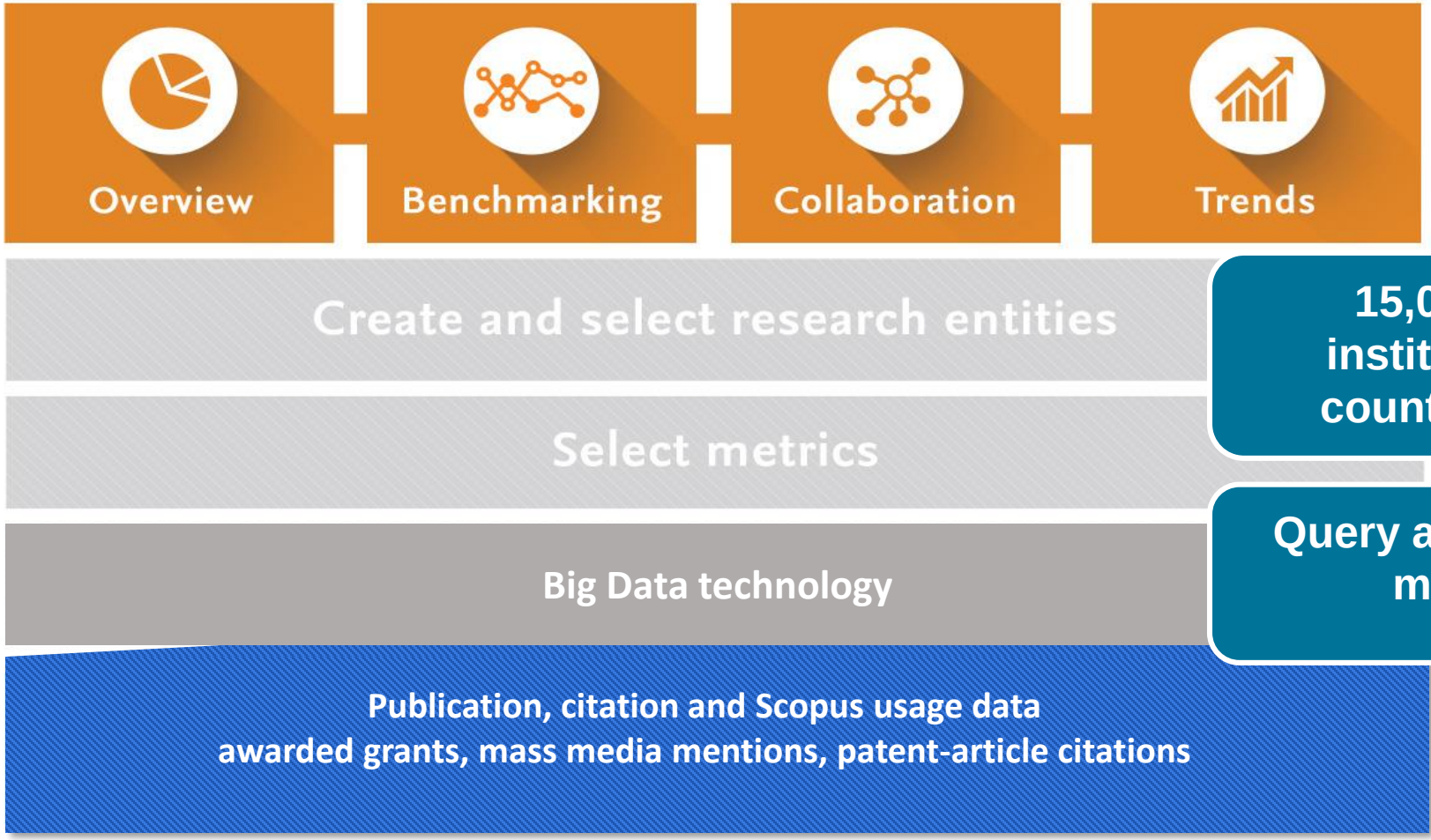
Empowering Knowledge

The layers of SciVal

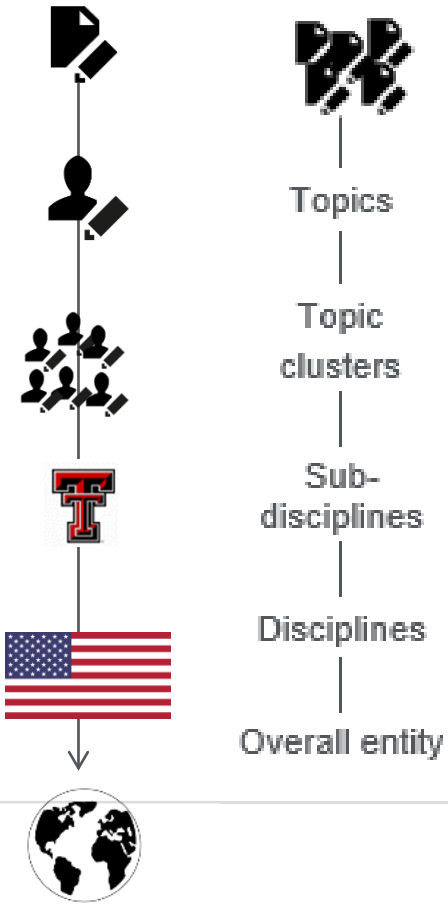


15,000+ research institutions and 230 countries worldwide

Query around 200 trillion metric values

A ready-to-use resource used to analyze different entities, content types and time periods

What you can analyze?



On what content?

Publications
(citations and usage)

Patents

Awarded grants

Media mentions

On what time period?

1996

10y: 2009-2018

5y: 2014-2018

3y: 2016-2018

2019>

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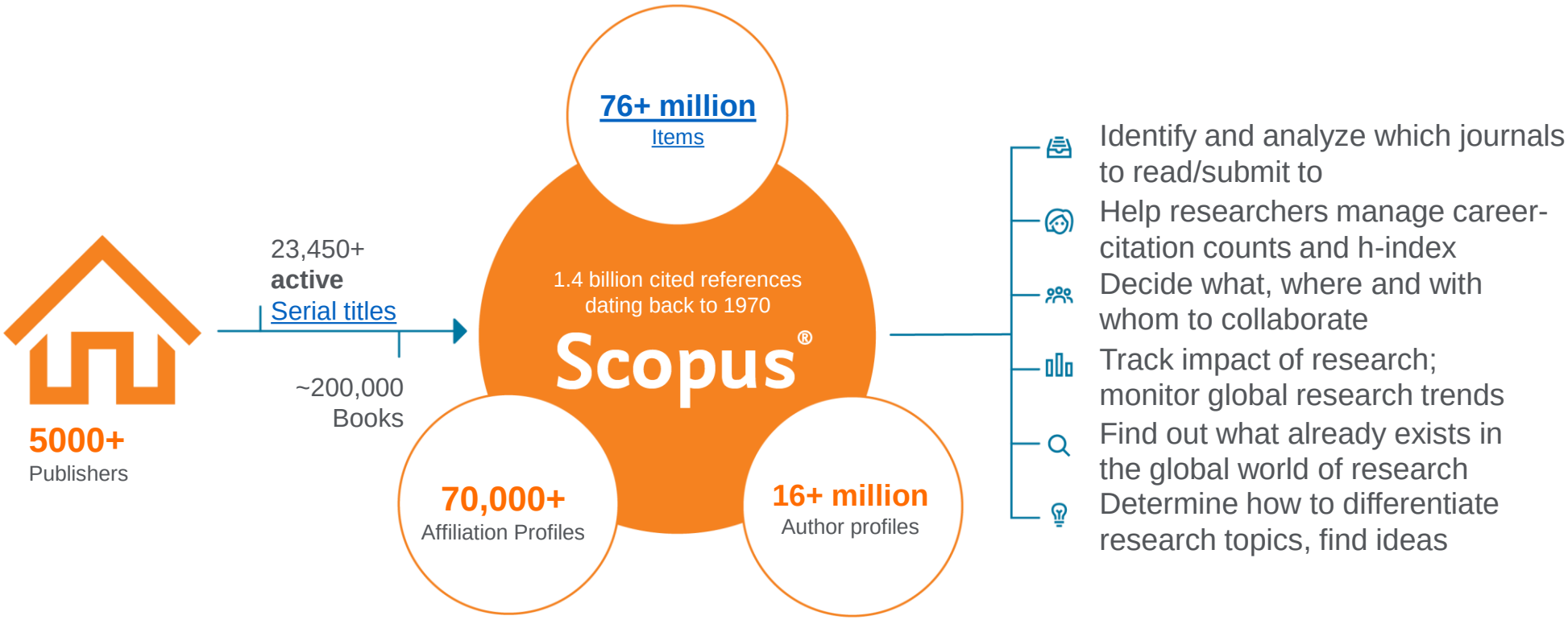
Underlying data source - Scopus

largest curated abstract and citation database of peer-reviewed literature

featuring smart tools to track, analyze and visualize research



Scopus Data Matters | Relational Data Model

Scopus can tell you **who** is doing **what** in global literature and **where** they are doing it with **higher accuracy** than anyone else.

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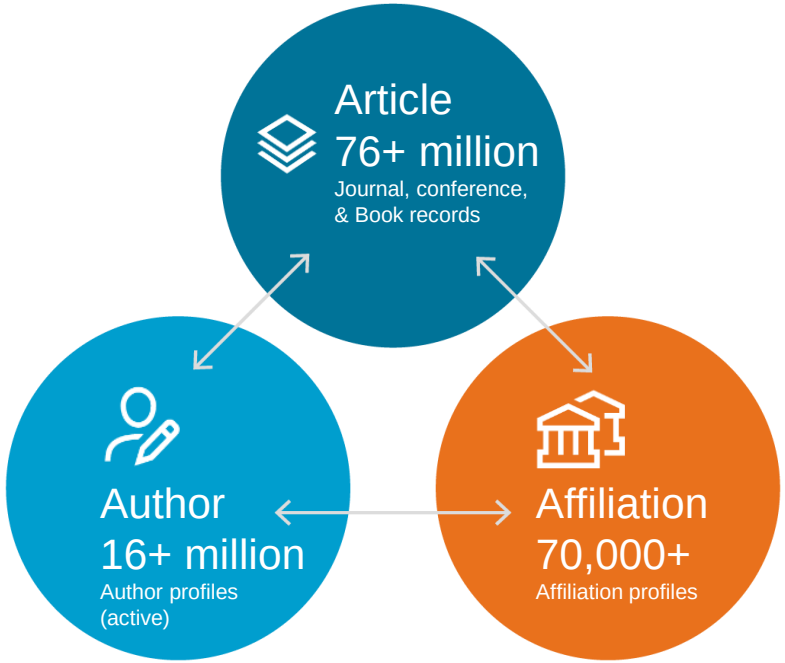
The Scopus data model

The Scopus data model is designed around the notion that ***articles*** are written by ***authors*** that are ***affiliated*** *with institutions*. Visually and rather simplistically, this relational model is represented below.

Scopus Data Model Simplified



What is the value of this structured data? This relational data model means that Scopus can tell you **who is doing what** in global literature and **where they are doing it** with **higher accuracy** than anyone else

Power of

Scopus | Curated Author Profiles

Scopus includes over 16 millions Author Profiles, which are automatically created whenever new data is uploaded. We offer a feedback feature to ensure each author's profile is distinct and kept up-to-date. No other A&I database matches Scopus for precision and recall.

Author Profile Generation

Scopus is the only database that implements algorithmic & systematic author disambiguation.

The most powerful **algorithmic data processing** in the industry groups papers to to an individual's profile with a high degree of accuracy based on matching of name, email, affiliation, subject area, citations, co-authors, etc.

The **Author Feedback Wizard** is available for Author Profile changes to be requested due to the complexities of disambiguation, such as common names, name changes, incomplete metadata from publishers, etc. Scopus makes every effort to update & maintain precise & complete profiles. To date we have curated 1.2 million Author Profiles, with approximately 34,000 Profiles corrected monthly.

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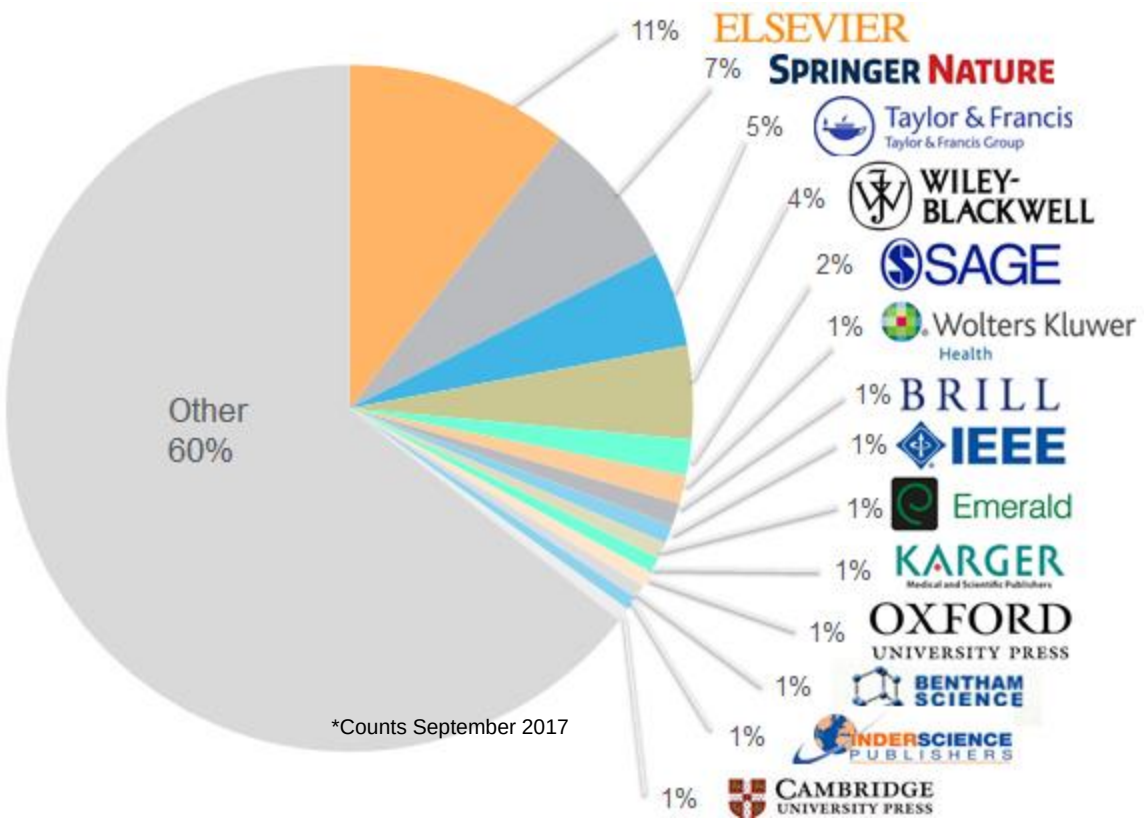
The Bibliographic Index Leader

>76M records and **>23,450** active titles from more than **5K** international publishers. More than **3,759** Gold Open Access journals indexed, **156K** books and **8,1M** conference proceedings*

Unbiased, comprehensive journal coverage with titles from **many reputable scholarly publishers**:



*Counts September 2017

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Overview Module

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Empowering Knowledge

“How can we demonstrate excellence in a way that best shows our unique strengths to secure funding and attract students?”

View the disciplinary focus of your institutions and your top researchers

Texas Tech University

701-750 (QS) · 601-800 (THE) · 401-500 (ARWU) | United States | More details on this Institution

2013 to >2018 | no subject area filter selected | ASJC

Summary | Topics & Topic Clusters | Collaboration | Published | Viewed | Cited | Authors | Economic Impact

+ Add

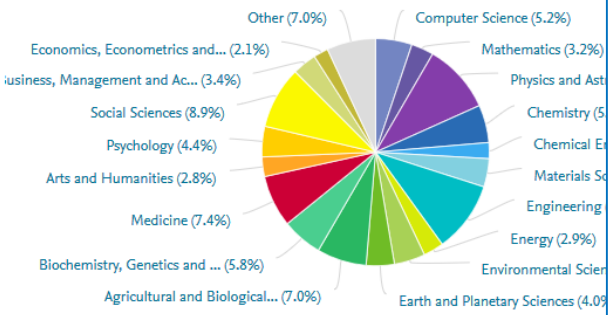
Overall research performance

Scholarly Output
12,073 ▲
View list of publications

Authors
5,762 ▲

Citation Count
111,087

Citations per Publication
9.2



Performance indicators

Outputs in Top Citation Percentiles

+ Add to Reporting

Publications in top 10% most cited worldwide

Texas Tech University: 16.7%
United States: 16.4%

Analyze in more detail

Publications in Top Journal Percentiles

+ Add to Reporting

Publications in top 10% journals by CiteScore Percentile

Texas Tech University: 36.8%
United States: 37.1%

Analyze in more detail

International Collaboration

+ Add to Reporting

Publications co-authored with Institutions in other countries

Texas Tech University: 35.3%
United States: 32.4%

Academic-Corporate Collaboration

+ Add to Reporting

Publications with both academic and corporate affiliations

Texas Tech University: 2.8%
United States: 4.0%

Research Topics

+ Add to Reporting

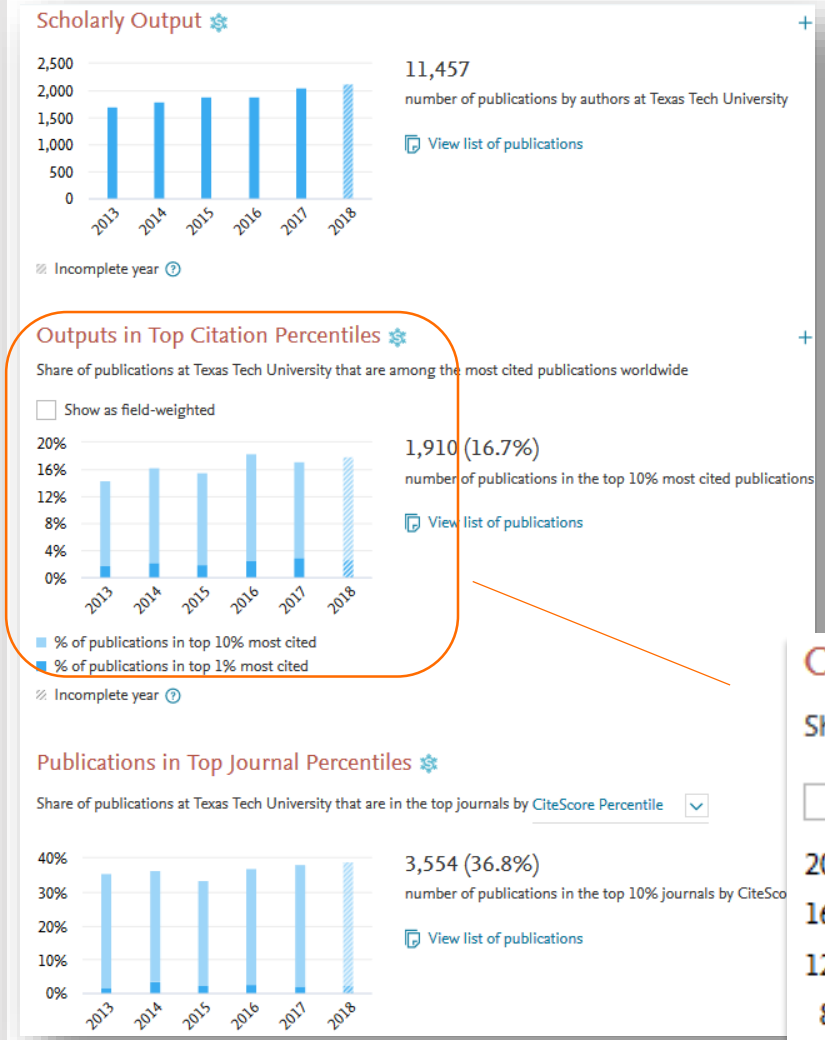
Topic Clusters | Topics

Top 5 Topics, by Scholarly Output

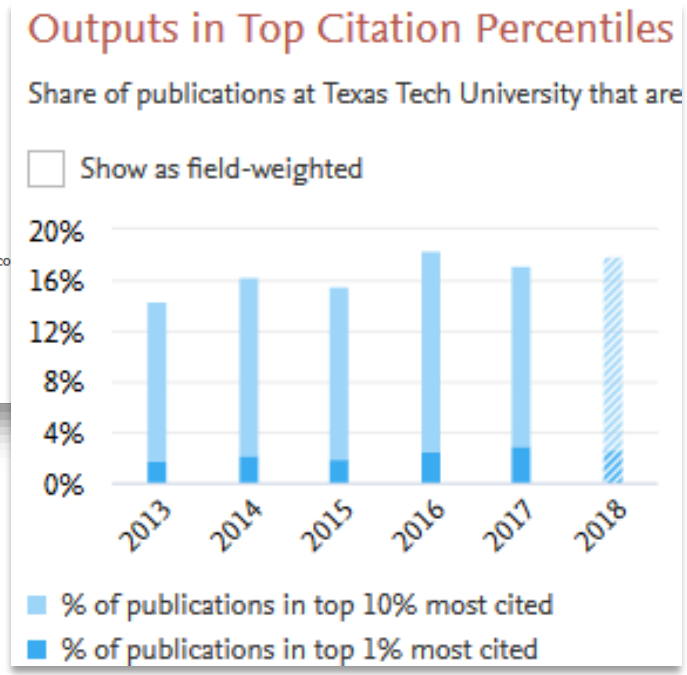
Topic	At this Institution: Scholarly Output	Publication Share	Field-Weighted Citation Impact	Worldwide: Prominence percentile
jets; production; parton shower ... T.1026	238	10.73% ▲	3.58	99.875
Radar; Doppler radar; sign detection ... T.9732	86	8.00% ▲	2.09	95.065
supersymmetry; collisions; simplified models ... T.23456	59	13.14% ▲	4.05	96.765
Ignition; Explosives; aluminum nanoparticles ... T.8825	58	6.69% ▼	0.81	96.451
Reservoirs (water); Shale; shale oil ... T.31808	55	9.73% ▲	4.61	88.066

Look through different metrics to identify ones that demonstrates your institution's research excellence

See how many of your publications fall into the top 1% and 10% of the most cited articles in the world



2017
2.9% in top 1% most cited
17.3% in top 10% most cited



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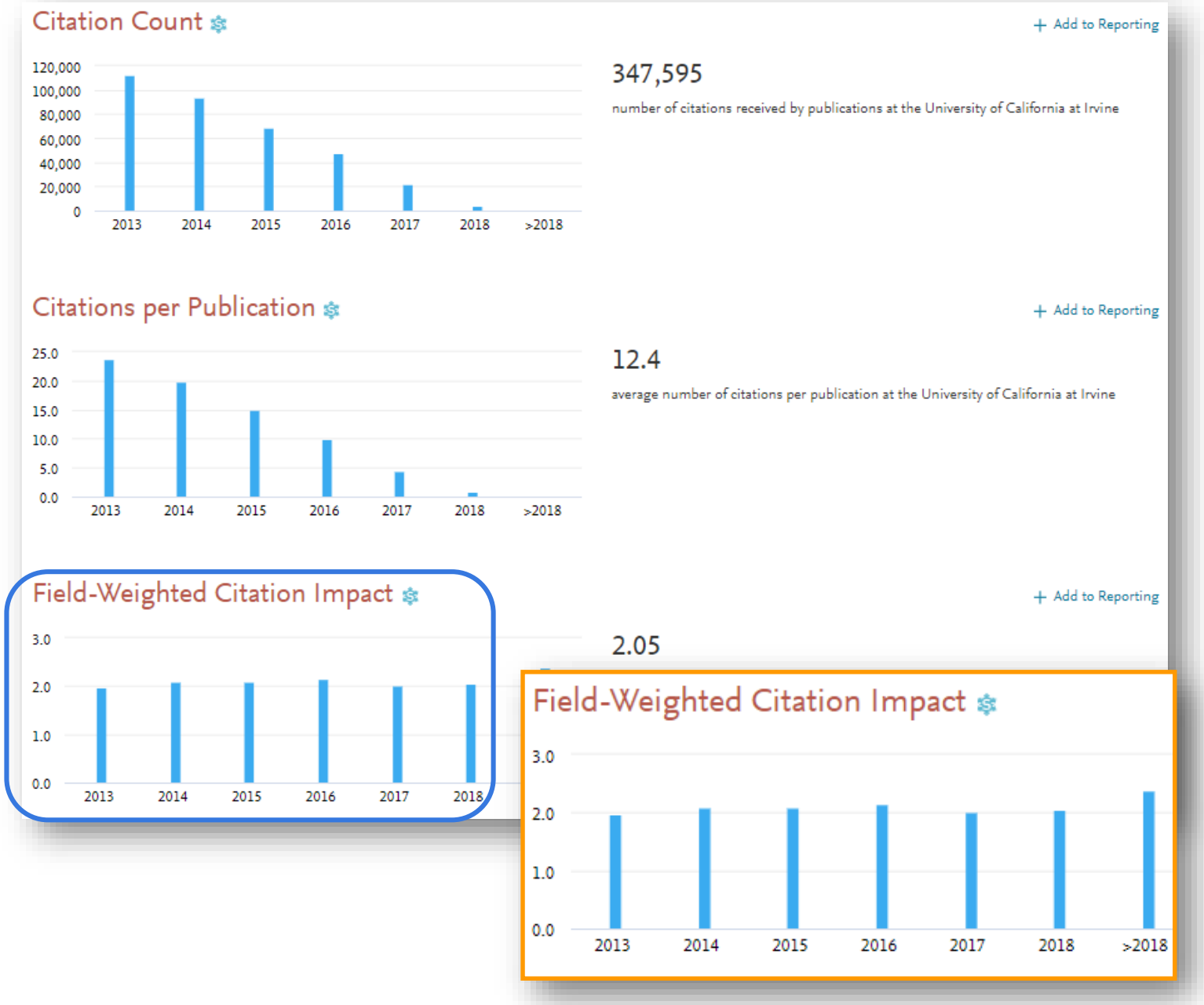

View Field-Weighted Citation Impact that normalizes citation behavior for differences in size, field and publication-type

Collaboration Module

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Empowering Knowledge

"Who do Texas Tech researchers collaborate with and how can we expand?"

Drill into the map to identity your collaboration partners in any region

Institutions collaborating with Texas Tech University

Worldwide | All sectors | All authors

2,869 collaborating institutions | 8,228 co-authored publications

Map | Table | + Add to Reporting | Export | Shortcuts | Find institution

Institution	Co-authored publications	Co-authors at Texas Tech University	Co-authors at the other institution	Field-Weigh...
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Kansas State University	764 ▲			3.73
Massachusetts Institute of Technology	759 ▲			6.25
Universite Paris-Saclay	756 ▲			6.13
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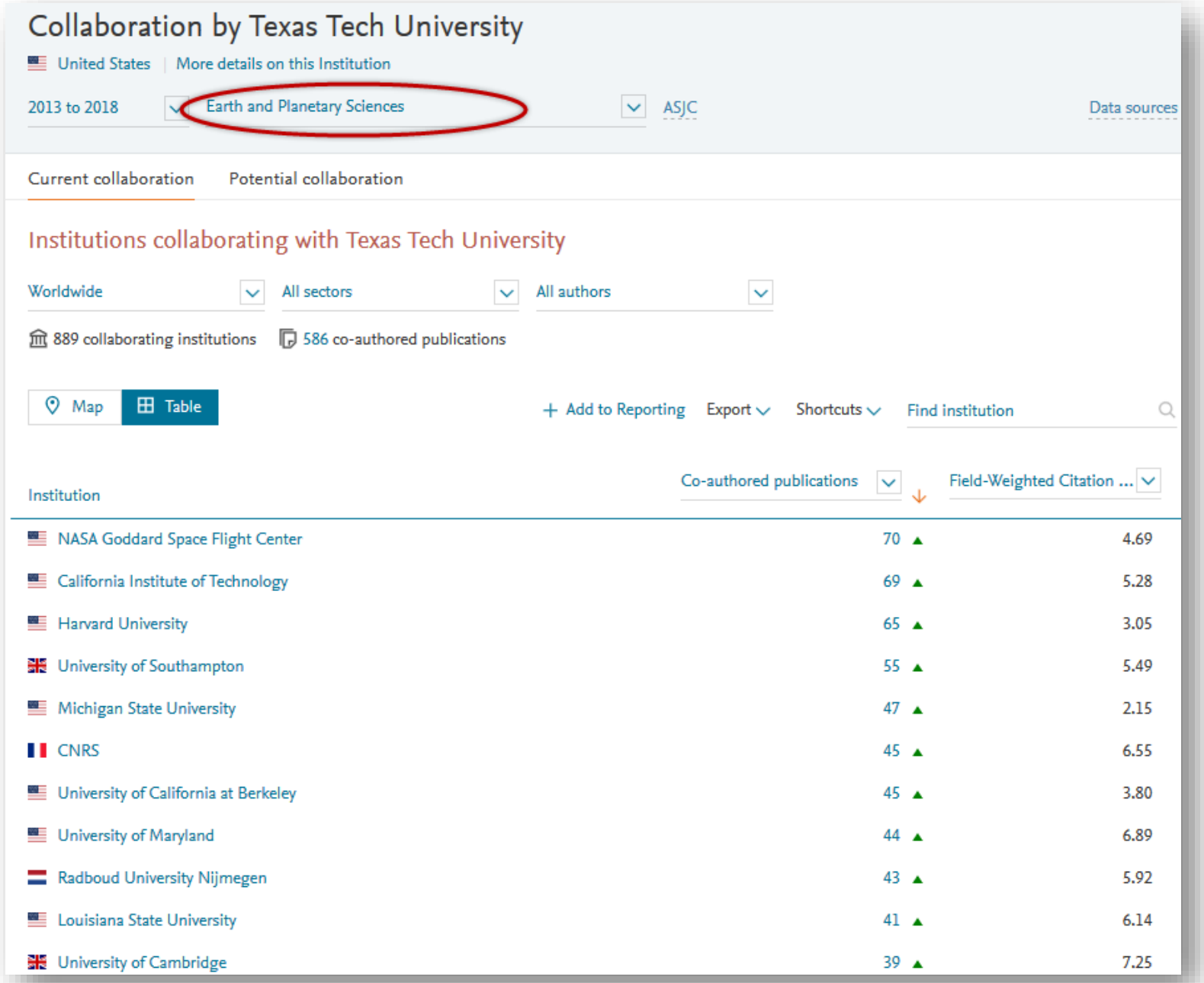
University of Nebraska	732 ▲	219 ▲	555 ▲	3.97
INFN	730 ▲	140 ▲	950 ▲	6.31

Asia Pacific

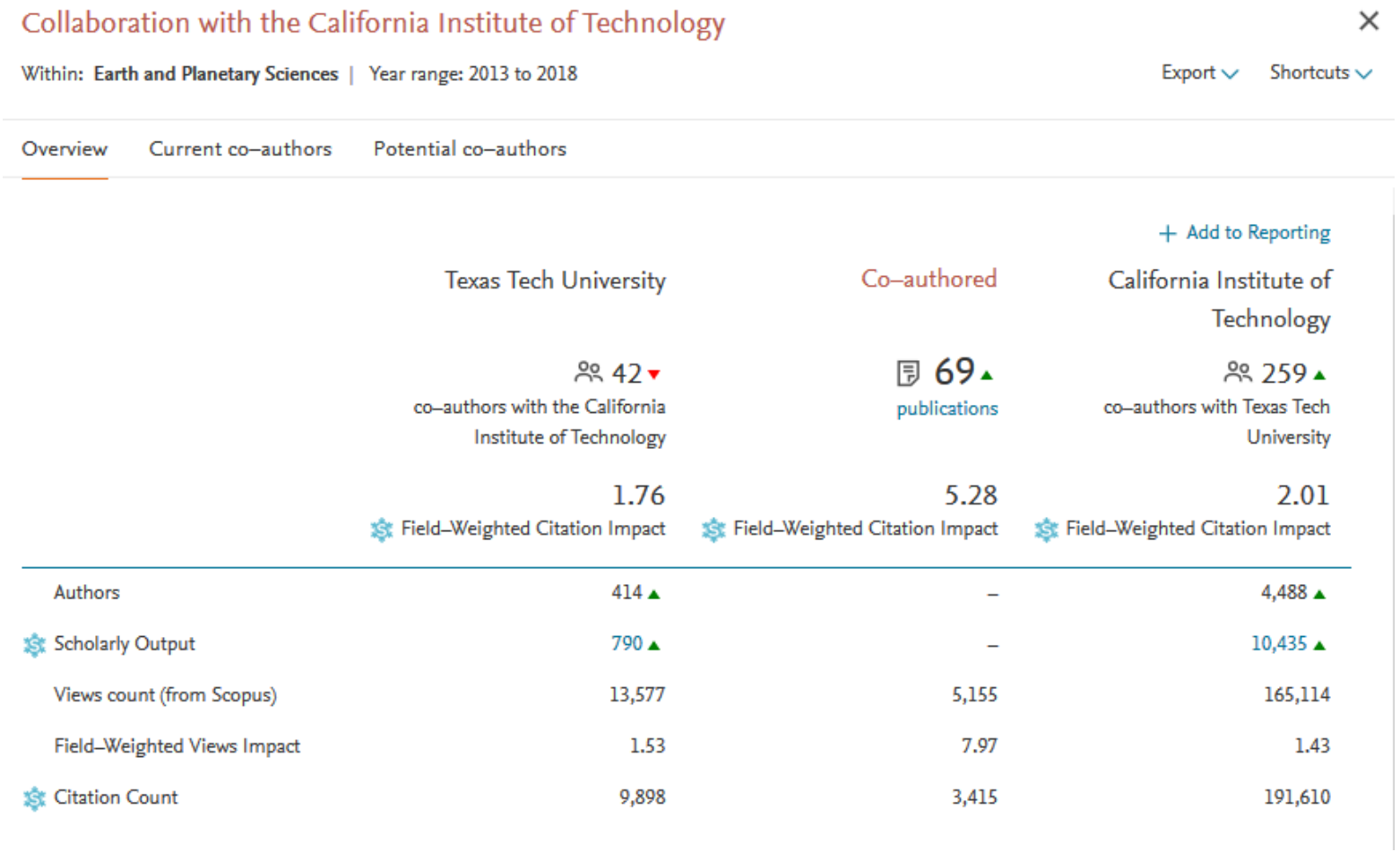
686 collaborating institutions

2,529 co-authored publications

Identify existing and potential collaboration partners – can look in a specific research discipline.



Assess the activity and identify collaborating researchers



Collaboration with the California Institute of Technology

Within: **Earth and Planetary Sciences** | Year range: 2013 to 2018

Export Shortcuts

Overview | Current co–authors | Potential co–authors

+ Add to Reporting

	Texas Tech University	Co–authored	California Institute of Technology
	42 ▼ co–authors with the California Institute of Technology	69 ▲ publications	259 ▲ co–authors with Texas Tech University
	1.76 Field–Weighted Citation Impact	5.28 Field–Weighted Citation Impact	2.01 Field–Weighted Citation Impact
Authors	414 ▲	–	4,488 ▲
Scholarly Output	790 ▲	–	10,435 ▲
Views count (from Scopus)	13,577	5,155	165,114
Field–Weighted Views Impact	1.53	7.97	1.43
Citation Count	9,898	3,415	191,610

>100 authors/publication

Trends Module

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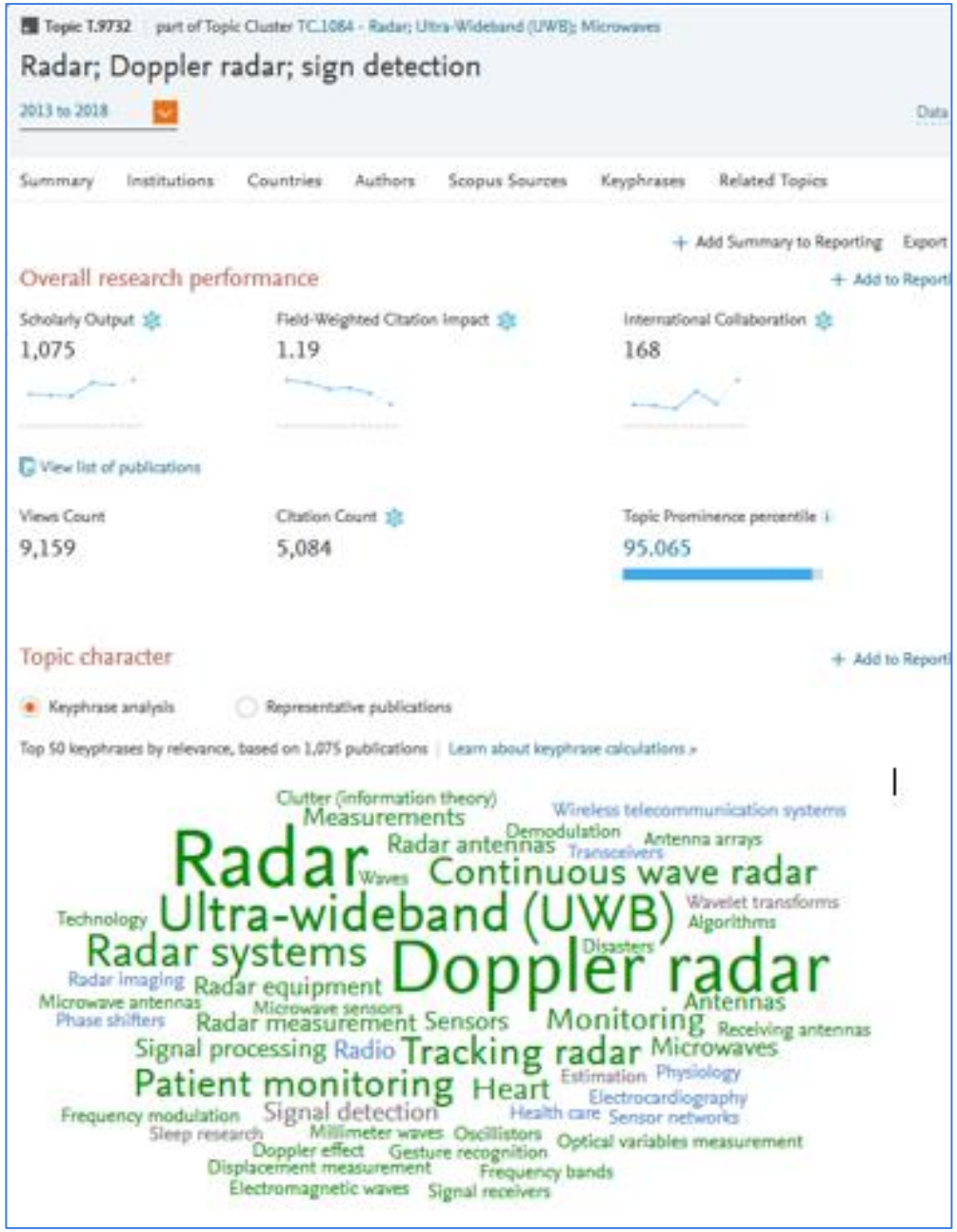
Empowering Knowledge

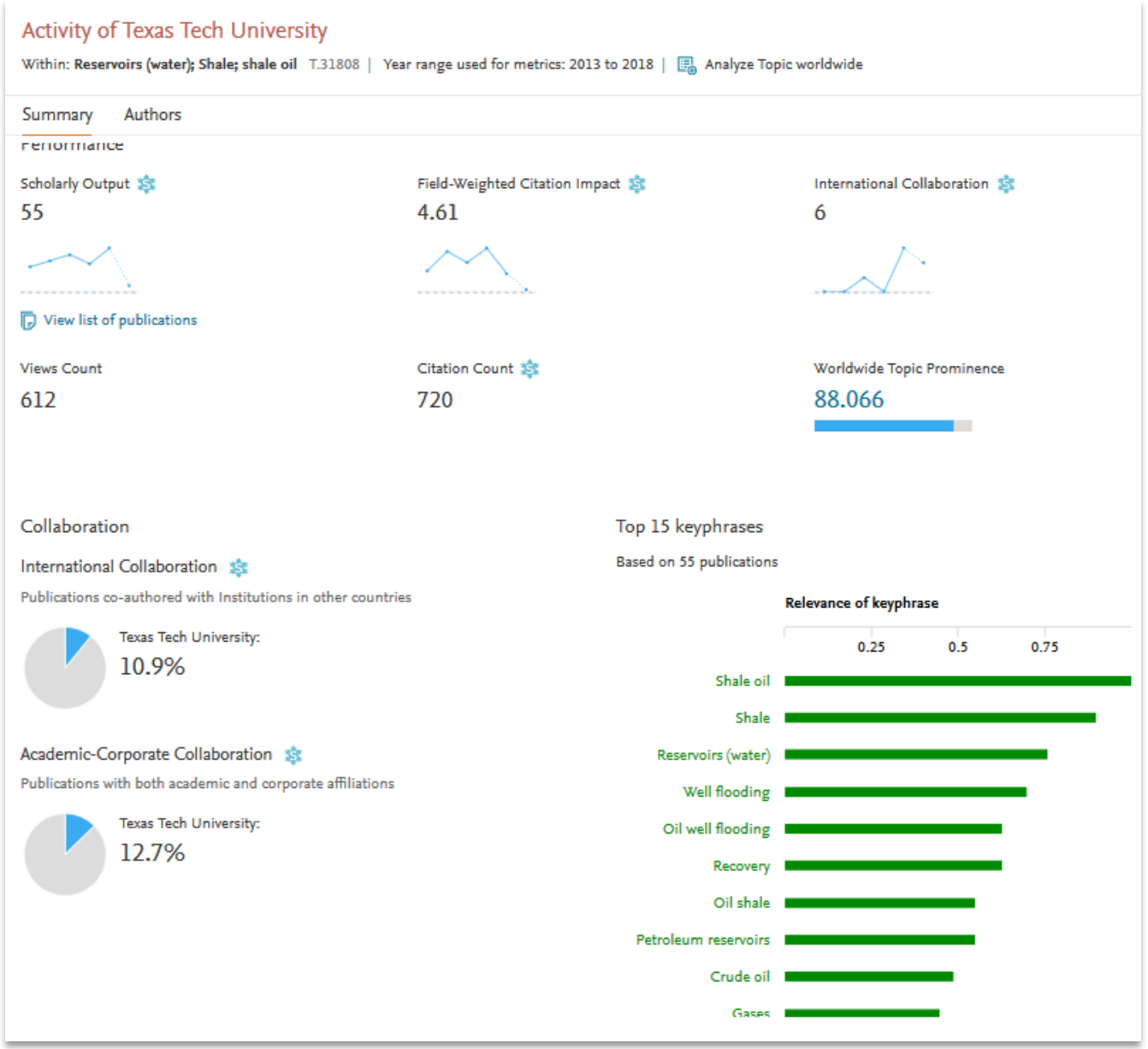
“How can I see who’s excelling in a specific subject compared to my researchers, for potential collaboration opportunities?”



Choose or create your own Research Area in SciVal

Analyze all or a specific part of the Research Area

Choose a specific key phrase within the Research Area, then view the performance of the top institutions, countries, authors and journals and compare them to your institution for potential synergies



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

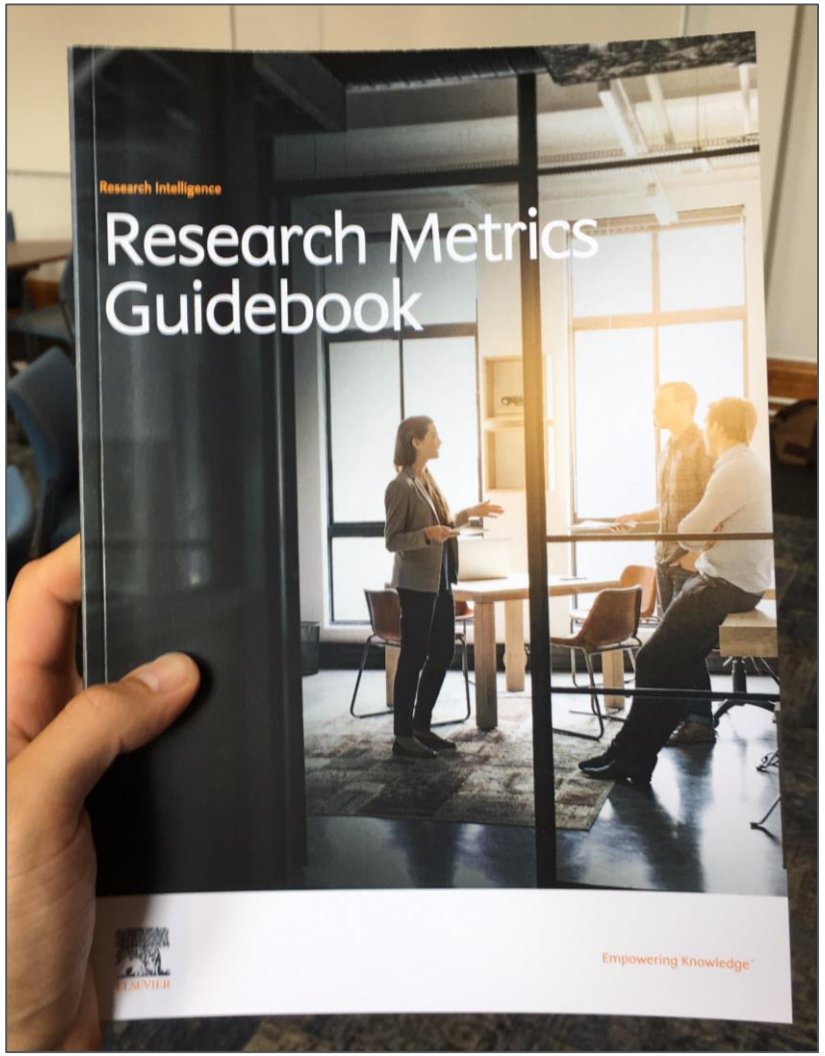
One metric's strengths can **complement** the weaknesses of others

There are many different ways of being excellent

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

Research Metrics Guidebook

- **Topics –** Expand and enhance
- **Organisational hierarchies in SciVal** – Easy method to create and maintain
- **Reporting** – Simplify, enhance and expand the functionality
- **Improve our metrics support –** Relaunched support hub, refreshed Metrics Guidebook, in-product guidance, reporting templates, Metrics wizard
- **Additional –** REF year range, new subject classifications, home institution filter and hyper-authored papers, Collaboration module overhaul



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Research Metrics Guidebook

This comprehensive metrics guidebook is intended to be a straightforward, practical companion for you to find the right metrics to meet your objectives.

- **Understanding metrics**
  - Scopus as data source
- **Selection of appropriate metrics**
  - What affects their values, besides performance?
- **For each metric**
  - Situations in which they are useful
  - When to take care and how to address short-comings
  - Worked examples

4.0 SciVal and research metrics

A basket of >30 of metrics

Productivity metrics
- Scholarly Output
- Outputs in Top Percentiles
- Publications in Top Journal Percentiles

Citation Impact metrics
- Citation Count
- Citations per Publication
- Cited Publications
- Number of Citing Countries
- *h*-indices (*h*, *g*, *m*)
- Field-Weighted Citation Impact

Citing-Patent Count
Patent-Cited Scholarly Output
Patent-Citations Count
Patent-Citations per Scholarly Output

Collaboration metrics
- Collaboration (geographical)
- Collaboration Impact (geographical)
- Academic-Corporate Collaboration
- Academic-Corporate Collaboration Impact

Disciplinarity metrics
Journal count
Journal category count

Usage metrics (Trends module)
Views Count
Views per Publication
Field-Weighted Views Impact

Societal Impact Metrics
Mass Media
Media Exposure

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Snowball Metric; www.snowballmetrics.com/metrics

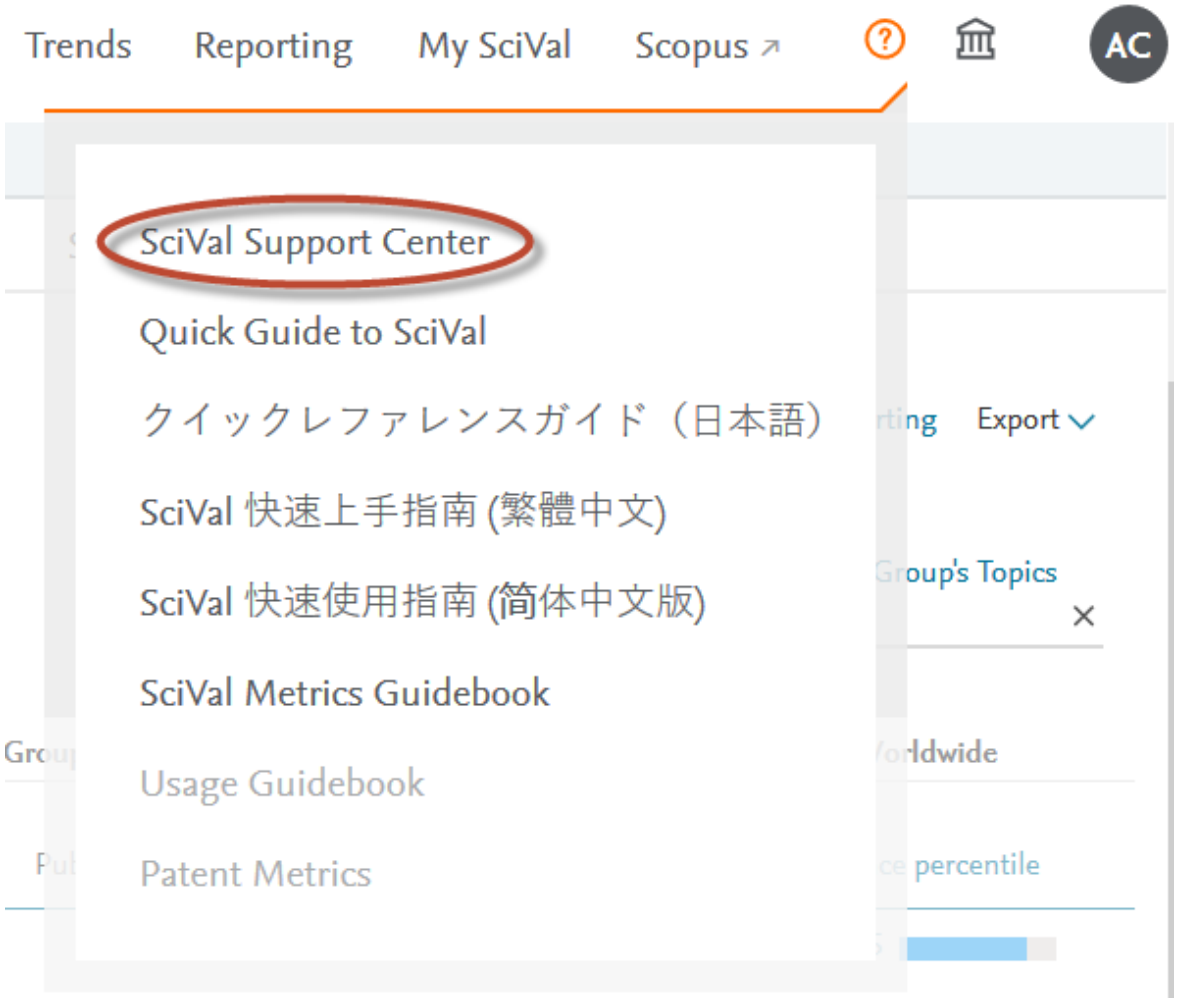
Getting help

Getting help

The spine menu will provide a line to help documentation

https://service.elsevier.com/app/home/supporthub/scival/

- Contact me if you have any problems and I will answer the question or find someone who can. l.Galloway@Elsevier.com 949-280-6029



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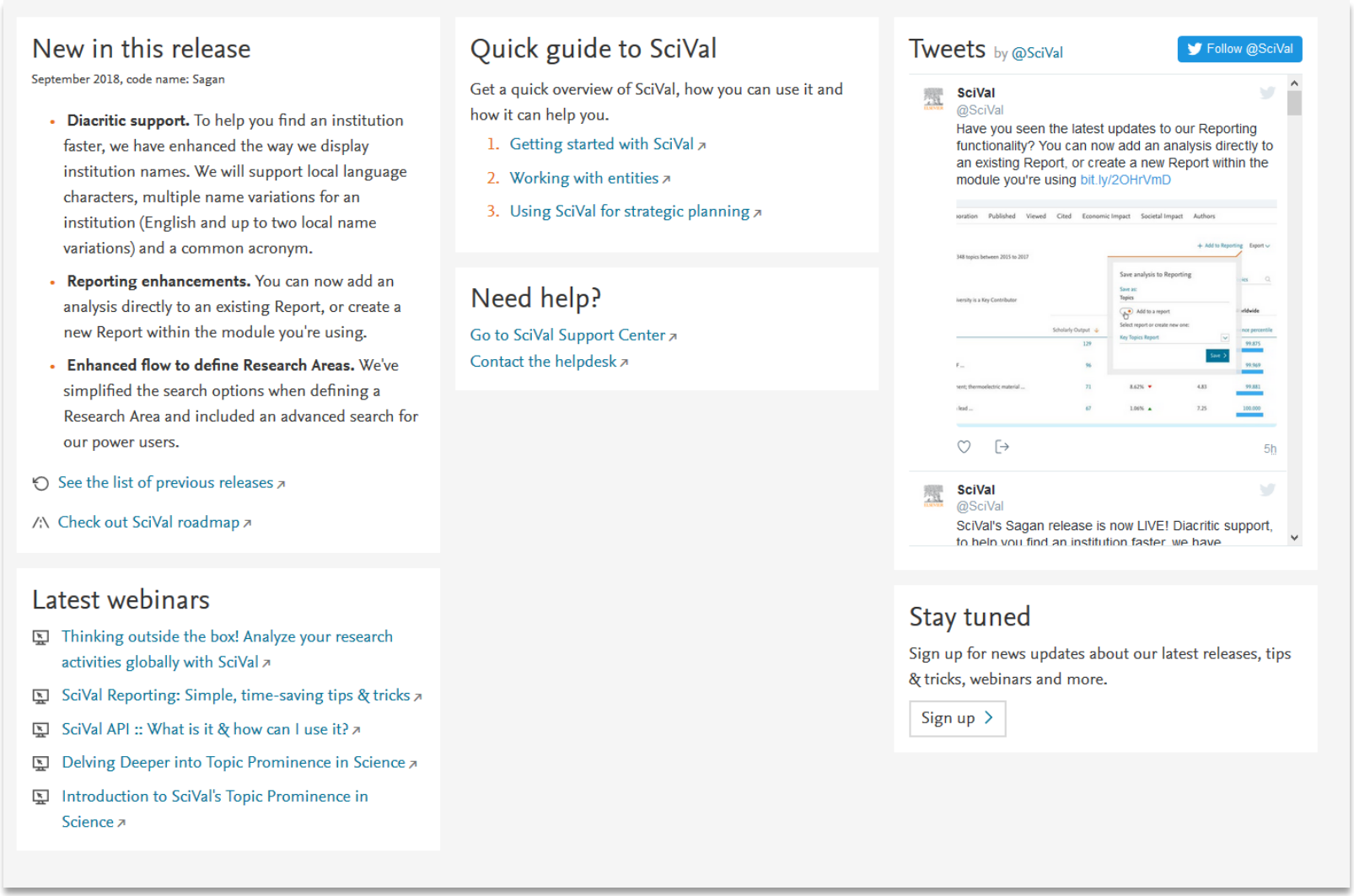
- Read and share our exciting Twitter updates
- “New in this Release” news section >> see the latest release elements
- SciVal Development Roadmap >> see what’s coming up for SciVal in 2020 and beyond
- Access the latest SciVal Webinars
- Learn exciting new Tips & Tricks via our virtual tour guide in SciVal

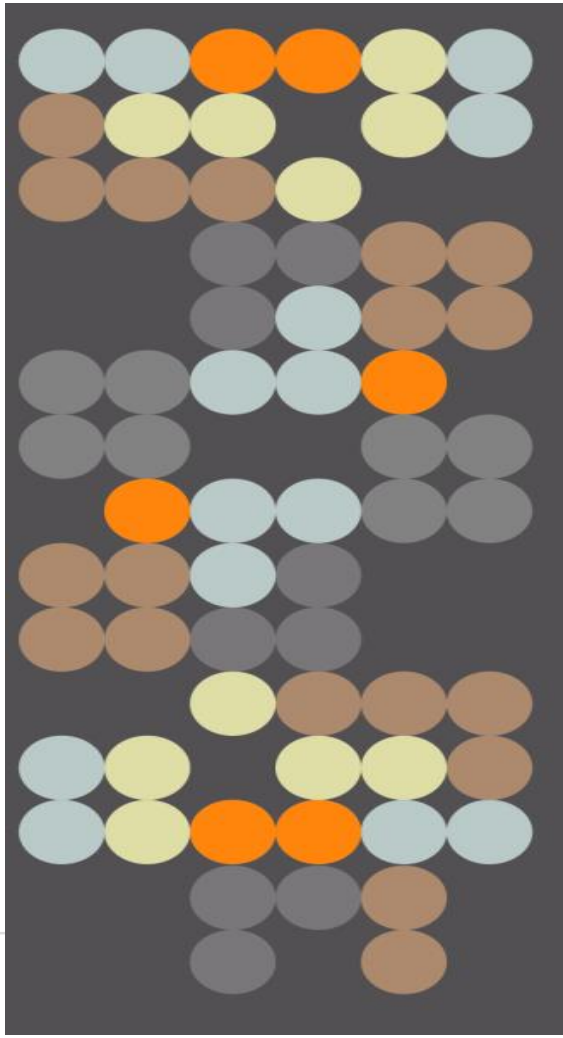
What’s new in SciVal?



SciVal - Solution to your strategic planning challenges

Gain immediate access to view and analyze the world's research to:

- View the ready-made, at-a-glance snapshot of your research performance or of any team or institution around the world
- Benchmark your team's or institution's performance against any set of peers.
- Model test scenarios by creating virtual teams and newly emerging research areas.
- Evaluate existing and identify potential collaborative partnerships, locally or globally
- Track and monitor top performers and rising stars for any research topic of interest.



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Further reading

For further information regarding the methodology, how Prominence is calculated and assigned etc. please see the following papers:

Research Portfolio Analysis and Topic Prominence

Richard Klavans and Kevin Boyack

Identifying Emerging Topics in Science and Technology

Henry Small, Kevin W. Boyack and Richard Klavans

Which Type of Citation Analysis Generates the Most Accurate Taxonomy of Scientific and Technical Knowledge?

Richard Klavans and Kevin W. Boyack

A New Methodology for Constructing a Publication-Level Classification System of Science

Ludo Waltman and Nees Jan van Eck

Thank you!

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