



ELSEVIER

Research Intelligence

Topic Prominence in Science - FAQ

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NOTE

The following extensive FAQ document is based upon customer feedback and questions. It should answer any of the questions which you have, and will be built upon as new questions come in.

Should you have any questions regarding the replacement of Competencies and what it means for you, please don't hesitate to reach out to your sales representative, or alternatively you can contact our support team via <http://scival.com/contact>

Topic Prominence in Science: FAQ 1/6

What is a Topic?

A Topic is a collection of documents with a common focused intellectual interest, such as the work on a specific research problem. Documents within a Topic cite and are cited by other documents in the Topic.

How are Topics created?

We take the entire citation network – roughly 70 million documents and a billion citation links between documents – and break that network into roughly 100,000 clusters, where the linkages within each cluster are strong and linkages between clusters are weak. Each cluster is a Topic.

How is Prominence calculated?

Prominence is comprised of three metrics – recent citation counts, recent views counts, and journal impact (CiteScore). These three metrics are computed and then normalized using log transforms and standard deviations. The results are then combined as a weighted average.

What does Prominence mean?

Since prominence is based mostly on citations and views of only the most recent papers in a Topic, it reflects current visibility and momentum of the Topic.

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What is the correlation between Prominence and awarded grants?

Prominence is strongly correlated with both past funding and future funding. Even more importantly, however, funding per author increases with Topic prominence.

Which entities can I analyze based on the Topics they are active in?

Institutions and researchers, can all be analyzed based on the Topics they are active in. Further entities will be added in future releases.

How are Topics assigned to ASJC categories?

Since papers are assigned to ASJC categories independently of Topics, for each Topic we simply count the number of papers per ASJC category, and assign the Topic to its dominant ASJC category.

How can I filter on Topics?

Filtering by ASJC categories is not possible yet – it has been added to our roadmap. For the first iteration you will be able to search through your institution's Topics via keywords using the search functionality.

How are new Topics created?

Although this is a complex process, we create new Topics by identifying emerging Topics (small, high growth, with highly cited papers) using citation linkages, and then splitting the emerging Topics from existing Topics. We use the VOS algorithm developed by CWTS.

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How often are new Topics created?

New Topics are split off on a yearly basis. We anticipate 30-50 new Topics each year.

When do Topics get updated?

Topics are updated when we receive the data from Scopus, on a weekly basis.

How do new papers get assigned to Topics?

Two approaches are used for this. Firstly, it is based upon the references within the paper. However if it is ambiguous, a 'similarity algorithm' is employed

How is an institution's article share calculated?

That is calculated with the following formula [scholarly output of institution in topic/scholarly output of entire topic]

An institution was just added to SciVal, can I see which Topics they are active in?

It will be included with the processing of the next Scopus snapshot.

Does Topics replace Competencies?

Yes, Topics will replace Competencies. If you have Research Areas created with Competencies those will remain usable in SciVal but won't be updated with new publications.

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How are the names of Topics generated?

The labelling of Topics is done using a combination of Elsevier Fingerprint Technology (EFT) and idiosyncratic phrases. The first two parts are generated by using EFT and provide a high level description of the Topic. The second two parts are idiosyncratic phrases, phrases relatively unique to the Topic, and give a more specific description of the Topic.

How many Topics is an average institution active in?

It depends on the institution size and the threshold. For example, an institution publishing around 5,000 papers per year will be active (at least 1 paper per year) in around 1,000 Topics.

When will the recalculation of new Topics be done each year?

After initial set of Topics are created, during every weekly run new papers will be assigned to existing Topics.

After that either annually or semi-annually, we will be running algorithm to identify emerging Topics. The exact schedule has not been decided upon yet. New Topics are split out but we actually never recalculate the whole model. That is done once (and therefore stable).

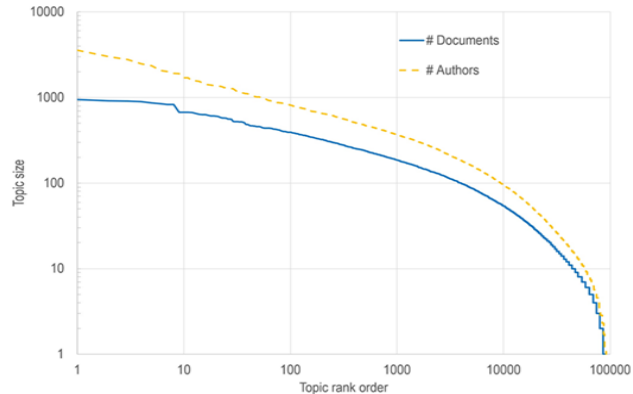
How do these figures of 32M relate to the quote 60M records for Scopus?

The ~32 million was from 1996-2015 only. The 60+ million includes the back-indexed items prior to 1996, and from mid-2015 to present

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What is the distribution of Topic sizes?

This is an example of the Topic size distribution based on a single publication year.



Does Prominence equate to Importance?

Due to the nature of certain research fields there are Topics which, will never become "Prominent", however this is not mutually exclusive with the Topic not being important. **Prominence is an indicator of momentum/movement or visibility** of a particular Topic. Comparisons of Prominence are best done with Topics in similar disciplines for fair and meaningful comparisons.

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I would like to know more about the underlying research behind Topic Prominence in Science, where should I start?

You can read more about the underlying methodology and background research which went into the development of Topic Prominence in Science

Topics and prominence.

Klavans, R. and K.W. Boyack, [Research portfolio analysis and topic prominence](#). Journal of Informetrics, 2017. Under review, expected to be published Fall 2017.

Accuracy of competing methods

Klavans, R. and K.W. Boyack, [Which type of citation analysis generates the most accurate taxonomy of scientific and technical knowledge?](#) Journal of the Association for Information Science and Technology, 2017. 68(4): p. 984-998.

Emerging topics.

Small, H., K.W. Boyack, and R. Klavans, [Identifying emerging topics in science and technology](#). Research Policy, 2014. 43: p. 1450-1467.

How Topics are created

Ludo Waltman and Nees Jan van Eck [A New Methodology for Constructing a Publication-Level Classification System of Science](#). Journal of the American Society for Information Science and Technology 63(12): 2378-2392, 2012