Understanding Scopus & SciVal and the Times Higher Education:

A closer look for research leaders

What data do University Rankings use?

There are many global rankings organizations. These include magazines, newspapers, websites, academics, and governments. Some ranking organizations specialize in international rankings, others in national or regional, and a few do both.

To get a look into seven major rankings organizations, download the quick guide.

Ranking methodologies rely on data inputs from a range of external resources. These resources often include university and researcher data, relevant data on human resources, student administration, finances, and data from reputation surveys – each varying based on a league table's niche and focus.

For a broader understanding of University Rankings, please visit Guide to University Rankings.

Chapters

Research publication data

One element most rankers use is research publication data. This data is associated with the items (see Glossary) that researchers publish to share their findings.

You can glean several data points from publication data:

- Number of citations of an article
- Amount of articles a research institution has published
- Research collaboration of the authors, particularly international
- Authors affiliated to an institution

By using publication data, rankers get a quantitative look at each university's research to make it easier to compare them.

How are the Times Higher Education World University Rankings calculated?

THE's methodology groups 13 metrics into five major areas:

- Teaching (30%)
- Research (30%)
- Citations (30%)
- International outlook (7.5 %)
- Industry income (2.5 %)

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Data accessed from the THE website on July 12, 2021.
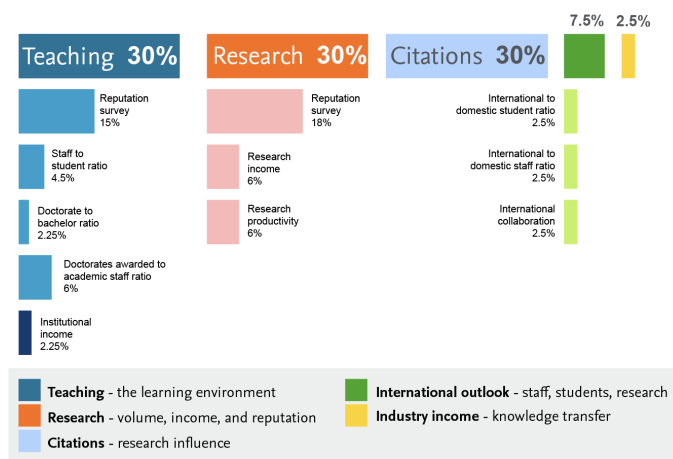
The weight distribution applied across the 13 metrics that THE uses in its WUR methodology. Adapted from THE website.

You will find more detail below.

Citation Data (30% of total score)

THE describes research influence as an indicator of a university's "role in spreading new knowledge and ideas." THE calculates this using Scopus publication data. The 2021 rankings analyzed publications for a five-year window (2015-2019) and the citations for about a six-year window (2015-mid-2020).

Elsevier provides a 5-year Field Weighted Citation Impact metric (FWCI). FWCI normalizes the subject area, publication year and publication type (see glossary). Publications with more than 1,000 authors have a fractional counting approach. Additionally, THE's data science team applies a series of further normalizations to determine the final Citations score.

Research Productivity (6% of the Research Productivity Score)

THE's research productivity indicator provides insight into the researchers' ability to publish in peer-reviewed titles indexed in Scopus. The count of journal articles, article reviews, conference proceedings, books and book chapters per scholar in the same five-year publication window, scaled for institutional size and normalized for the subject area.

International Collaboration (2.5% of the International Outlook Score)

International collaboration measures the proportion of a university's total publications with at least one international co-author. This metric is based on Scopus data and looks at journal articles, article reviews, conference proceedings, books and book chapters in the same five-year publication window as the Citations indicator. It is normalized for the subject area.

More can be found on the THE WUR methodology page.

How can I be included in the Times Higher Education world rankings?

Times Higher Education does not rank all universities. They use the seven key criteria to include you in the world university rankings.

- **Publish**. You are required to publish more than 1,000 relevant publications over the previous five years and more than 150 relevant publications in any single year.

- **Undergraduates**. You teach at an undergraduate level.

- **Wide Focus**. You must not focus on a single narrow subject area determined by if more than 80% of your publication output is from one subject area.

- **Supply**. You must supply "overall" numbers for the ranking year.

- **Null Values**. You cannot have more than two of the critical values (academic staff, international academic staff, research staff, students, international students, undergraduate degrees awarded, doctorates awarded, institutional income, research income, research income from industry and commerce) as null (either marked by the institution as "unavailable" or "withheld"). Null values will cause any metric based on that value also to be null.

- **Subjects**: You must supply numbers for at least one applicable subject. If you do not report on applicable subjects, you are excluded.

- **Exclusions**. You cannot be on the custom exclusions list. Institutions that have requested not to participate in the ranking or are not eligible for other institution-specific reasons are excluded.

If you meet these seven key inclusion criteria, you are included in the world rankings. Other types of rankings have different inclusion criteria.
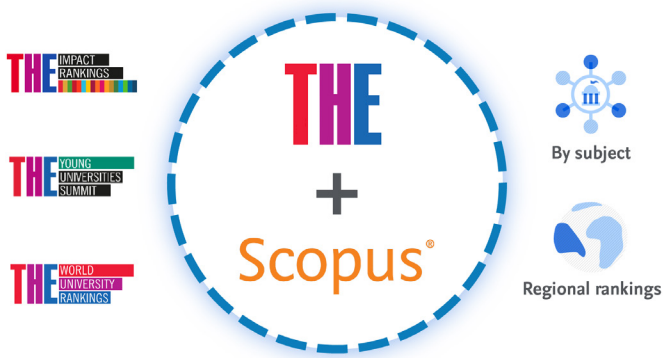
Why does Times Higher Education use Scopus data?

Scopus is a source of research publication data that several rankers rely on.

In 2014 THE adopted Scopus as its source for research publication data. At that time, Trevor Barratt, former managing director of THE, said this,

"Research publication data for the rankings will in the future be drawn from Elsevier's Scopus database. The new data source will allow us to analyze a deeper range of research activity from a wider range of institutions than at present, including those institutions from emerging economies that account for a growing portion of the world's research output and which have shown a great hunger for THE's trusted global performance metrics."

Times Higher Education (THE) uses Scopus data in several rankings, including World University Rankings and Young Universities.

What is Scopus Data?

It is crucial to understand Scopus's role in the rankings to ensure that THE accurately reflects your institution.

Scopus is a source-neutral abstract and citation database curated by independent subject matter experts.

There are three things you need to know about Scopus:

- What is in the database, and which parts does THE use?
- What is an institutional profile, and how can I maintain mine?
- What are author profiles?

The Scopus Database

Scopus is a structured source of publications items (see Glossary). The structure includes organizing the data generated in relationships, e.g., authors, citations, institutions, etc.

This video describes the elements about Scopus data you need to know to understand the background for THE university rankings.

The video showed that Scopus contains millions of data points across publishers, platforms, and sources. In addition to all this data, Scopus uses artificial intelligence to connect the data to correct authors and institutions.

Scopus is organized in a structured way so you (and Times Higher Education) can use it to find insights about your research.

Institution Profiles and Affiliation Hierarchy

When we talk about rankings, it is important to discuss Scopus Institution Profiles and the affiliation hierarchy. THE uses these to attribute the correct research to your institution when calculating the 38.5% of your rank.

Scopus data & Times Higher Education: An example

You can see an example of how Scopus Data, Institutional profiles and Rankings work together by looking at Li. Li works in the office of research and needs to meet a challenge posed by his Vice-chancellor:

- Determine the contributing factors to university rankings
- Develop a plan to show the university in its best light

Scopus contains artificial intelligence to develop affiliation hierarchies correctly. It is always good to periodically check to make sure it is accurate. In this way, Times Higher Education has the precise picture of your publication data. You can use the Institution Profile Wizard (IPW) to make changes.

How can SciVal help you understand your University's research & ranking?

SciVal helps you visualize your research performance, benchmark relative to peers, develop strategic partnerships, identify and analyze new, emerging research trends, and create uniquely tailored reports.

Here are the things SciVal can do.

- Identify and analyze your research strengths
- Benchmark against any research institution
- Recognize partners for increased collaborations
- Discover key researchers and rising stars
- Analyze your portfolio for hot research topics
- Report on all the data with customizable report templates

SciVal is based upon Scopus Data. Therefore, SciVal can help you interpret the same data that THE uses for 38.5% of their rank.

SciVal provides a view into the same publication and citation data used by THE. For example, you can:

- Get a glance at your THE Rankings
- Understand your collaborations
- Benchmark against others – potentially your competitors
- Determine the impact your research strategy has on your ranking

To see how this works in SciVal, watch this video.
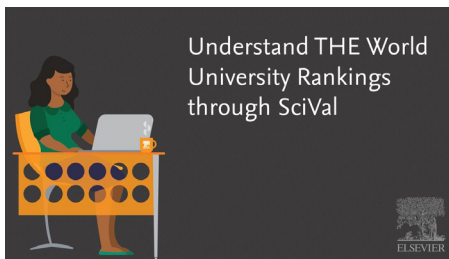
SciVal and Ranked Universities

As an example, let's look at "University X," which is ranked #1 in the 2021 THE World University Rankings. Below is an overview of their THE rankings information in SciVal.
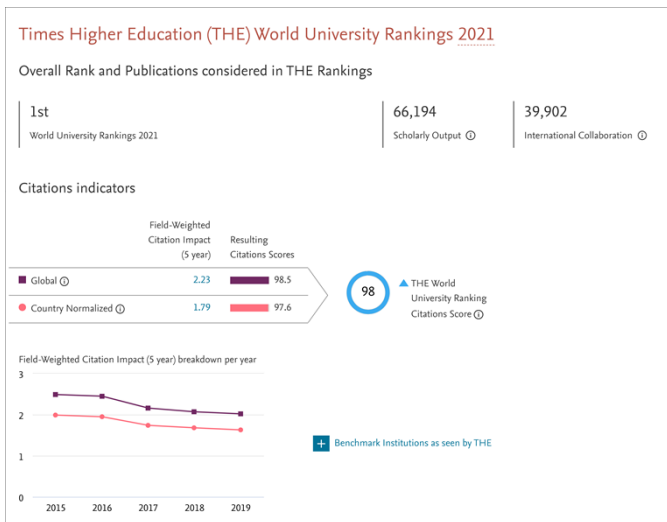
You can see THE views their Citation score a 98.

The #2 and #3 ranked universities were "University Y" and "University Z," respectively. You can benchmark these three institutions against each other.
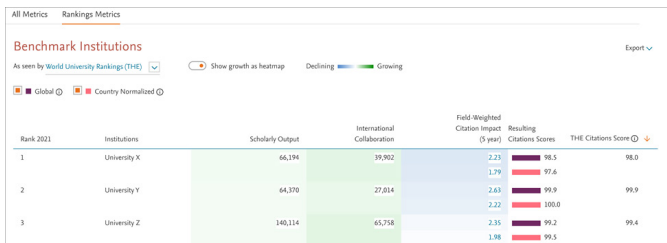
You can benchmark any ranked university.

SciVal and Collaboration

One of the areas that THE evaluates is your research with international collaborators. You can see all your publication co-authors and get a better understanding of your collaborators.

"University X" can see all their international collaborators and notes that "University Z" is in the top 10.

You can use the same function to see the industry partners.


University X's most active international corporate collaborators

Benchmark against others – potentially your competitors

With SciVal, you can benchmark things to your competitors. Some of the many metrics you can use to benchmark are:

- Scholarly output
- Citations
- Citation Impact (FWCI – see glossary)
- Article views

Below are two examples of benchmarking in SciVal.
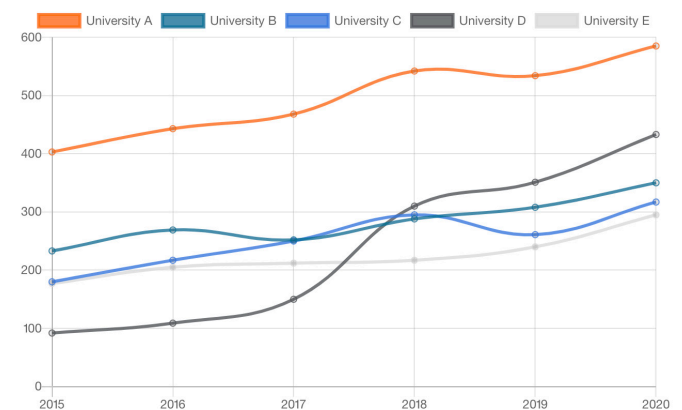
Glossary Items

In Scopus, items are also called documents. There are many document types:

Document Type	Definition	More Detail
Article	Original research or opinion	Articles in peer-reviewed journals are usually several pages in length, most often subdivided into sections: abstract, introduction, materials & methods, results, conclusions, discussion, and references. However, case reports, technical and research notes and short communications are also considered articles and may be as short as one page in length. Articles in trade journals are typically shorter than in peer-reviewed journals and may also be as brief as one page in length.
Article-in-Press (AiP)	Accepted article made available online before the official publication	
Book	A whole monograph or an entire book	Book type is assigned to the whole. Additionally, for books with individual chapters, each chapter, along with a general item summarizing the book, is also indexed with the source type Book.
Chapter	A book chapter	A complete chapter in a book or book series volume where it is identified as a chapter by a heading or section indicator.
Conference paper	Original article reporting data presented at a conference or symposium	Conference papers are of any length reporting data from a conference, except for conference abstracts. Conference papers may range in length and content from full papers and published conference summaries to short items as short as one page in length.
Data paper	Searchable metadata documents describing an online accessible dataset, or group of datasets.	A data paper intends to offer descriptive information on the related dataset(s), focusing on data collection, distinguishing features, access, and potential reuse rather than report on data processing and analysis.
Editorial	Summary of several articles, or provides editorial opinions or news	Editorials are typically identified as editorial, introduction, leading article, preface or foreword, and are usually listed at the beginning of the table of contents.
Erratum	Report of an error, correction, or retraction of a previously published article	are short items citing errors in, corrections to, or retractions of a previously published article in the same journal to which a citation Erratais provided.

Time Higher Education uses five publication types when calculation rankings:

• Articles

• Reviews

• Conference Proceedings

• Books

• Book Chapters

FWCI

Field-Weighted Citation Impact is a metric that considers different citation practices in other fields you can compare them.

FWCI is calculated by the total citations received by the denominator's output and the total citations that would be expected based on the average of the subject field.

A Field-Weighted Citation Impact of:

• *Exactly 1* means that the output performs just as expected for the global average.

• More *than 1* means that the output is more cited than expected according to the global average. For example, 1.48 means 48% more cited than expected.

• Less than 1 means that the output is cited less than expected according to the global average.

Field-Weighted Citation Impact considers the differences in research behavior across disciplines. It is beneficial for a denominator that combines several fields, although you can apply it to any denominator.

- Researchers working in medicine and biochemistry typically produce more output with more co-authors and longer reference lists than researchers working in fields such as mathematics and education; this is a reflection of research culture, not performance.
- In a denominator comprising multiple disciplines, the effects of outputs in medicine and biochemistry dominate those in mathematics and education.
- Using non-weighted metrics, an institution focused on medicine will appear to perform better than an institution that specializes in social sciences.
- The methodology of Field-Weighted Citation Impact accounts for these disciplinary differences.