

# SciVal

## User guide

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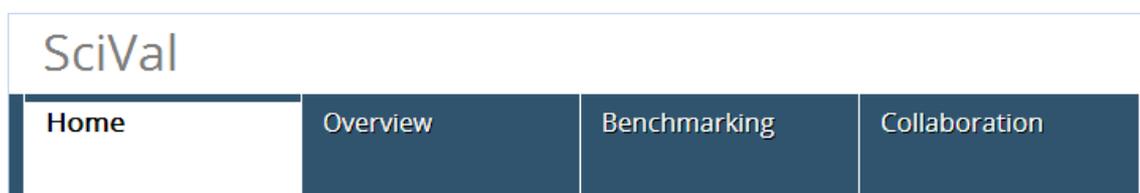
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# 1 About SciVal

## 1.1 What is SciVal?

SciVal is a set of integrated modules that enables your institution to make evidence-based strategic decisions. SciVal consists of three modules:

- **Overview** - Get an overview of the research performance of your institution and others based on output, impact, and collaborations.
- **Benchmarking** - Determine your strengths and weaknesses. Compare your research institution and teams to others based on performance metrics. Model different test scenarios.
- **Collaboration** - Identify and analyze existing and potential collaboration opportunities. Identify suitable collaboration partners. See who others are collaborating with.



### SciVal for chancellors and deans

To make the right strategic decisions, you need actionable data. SciVal gives you insights to make evidence-based decisions. Track your research performance, identify your institution's strengths and compare your institution to peers around the world.

### SciVal for senior researchers and department heads

With less funding and more competition, it's not enough to do good research. SciVal gives you the tools to evaluate and clearly demonstrate the value of your research to funding agencies and others. Analyze your performance by team or department, compare to peers and identify new collaboration partners.

### SciVal for research administrators, development professionals and data experts

SciVal combines the power to perform massive calculations with the flexibility to respond to user-defined queries. You can apply 15 different metrics to any grouping of people or publications. And you can filter the data by more than 330 journal categories.

## 1.2 What Spotlight and Strata users can expect

SciVal is the successor to SciVal Spotlight and SciVal Strata. SciVal has fully integrated the analytical capabilities of Spotlight and Strata, and made them more comprehensive and intuitive, with more metrics and more sophisticated ways to analyze performance.

- For **Strata** users – In SciVal, there are more refined analysis capabilities. Instead of five traditional metrics you can benchmark any institution, groups of researchers or publications using 15 different metrics.
- For **Spotlight** users – In addition to the innovative competencies and collaboration analysis introduced in Spotlight, SciVal offers more traditional indicators for research performance evaluation.

Benefits of the new SciVal include:

- **A single integrated platform**  
SciVal has three modules: Overview, Benchmarking and Collaboration. They form a single integrated platform sharing the same data, entities and metrics. You can navigate from one module to the other with ease.
- **Tailored to your needs**  
In addition to extensive predefined entities, you can also define and analyze your own entities, research teams and topics. This is helpful when tracking performance or planning strategy in a very narrow field, which is not covered by existing entity definitions.
- **More metrics and improved visualizations**  
SciVal goes beyond the basic metrics introduced in Strata. There are more metrics and more flexible ways to analyze the metrics. In seconds, you can see an in-depth analysis.

### 1.3 Browser requirements

**Supported browsers.** We strive to fully support the latest full versions of Mozilla® Firefox® and Google Chrome™ on Microsoft Windows. The following versions were tested for the current SciVal release:

- Firefox version 25.x
- Chrome version 31.x

SciVal also fully supports the following browsers running on Microsoft® Windows operating systems:

- Microsoft Internet Explorer version 8.x, and later

**Note that:**

- SciVal is only fully tested on these browsers running on Microsoft Windows operating systems. Therefore, we can only guarantee full functionality to customers running these browsers on a Microsoft Windows operating system.
- SciVal is not tested on the Apple Mac OS. However, the above versions of Firefox and Chrome, as well as the most recent version of the Apple® Safari® browser, are supported for Mac.
- Other operating systems and browsers may also be able to access Elsevier products; however, the Elsevier E-Helpdesk cannot provide expert advice or technical support to solve problems

you may encounter when using these systems.

- Beta or test versions of browsers are not supported.
- Mobile browsers are not supported.

## 2 Get started

### 2.1 Logging in

To log in to SciVal:

1. Go to [www.scival.com](http://www.scival.com)
2. If you already have access to other Elsevier sites (such as ScienceDirect or Scopus), you can log in with your current user name and password.

**Registering as a new user.** If you do not yet have an Elsevier username and password, you will need to register as a new user.

1. Go to [www.scival.com](http://www.scival.com) and click the "Register" link.
3. Your username is your email address. It is not case-sensitive.
4. Create a password. Your password must be 5 -20 characters long, and it must contain at least:
  - 1 uppercase character
  - 1 lowercase character
  - 1 number or special character:  
0 1 2 3 4 5 6 7 8 9 \* ~ ! @ # \$ % ^ & \* \_ + { } | : " < > ? ` - = [ ] \ ; ' , . / "

**Remote access.** If you are a registered user, there are two ways to access SciVal remotely.

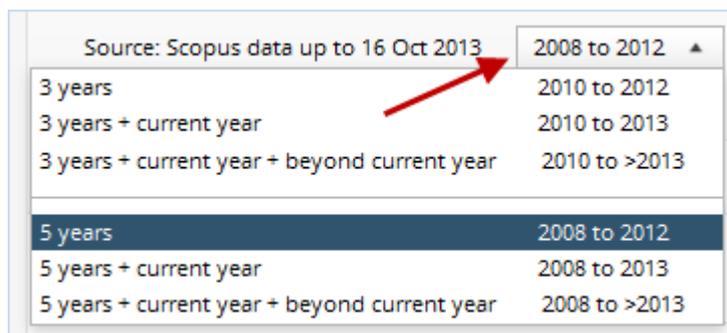
1. You can activate it yourself when you are logged in.
2. Or you can use a registration link provided by Elsevier support staff.

Contact your system administrator for details.

### 2.2 Selecting a time period

Use the year range selector at the top of the page to select the time period for your analysis. This lets you choose the range of publication years for the publications that are included in your analysis.

- In the Overview and Collaboration modules, you can analyze performance for a three- or five-year period.



- In the Benchmarking module, you can compare performance from 1996 until the present.

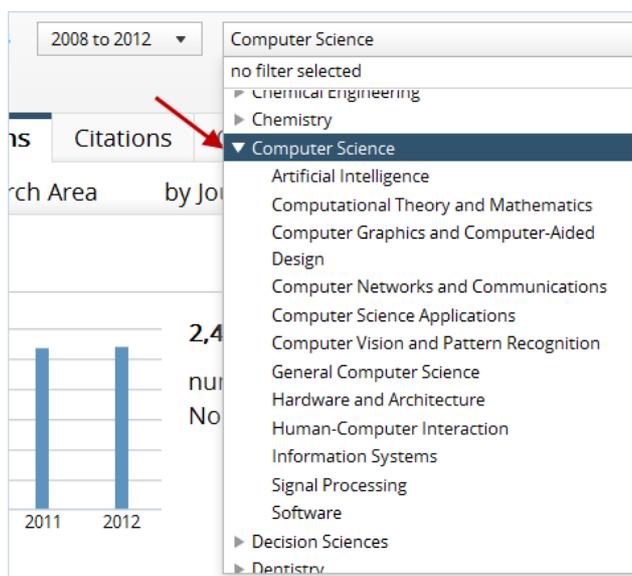


Optionally, you can also include the current year as well as publications in future years. However, you may want to exclude this because, by the end of the current year, Scopus has only received and indexed a certain portion of the current year's journals from other publishers.

## 2.3 Filtering by subject area

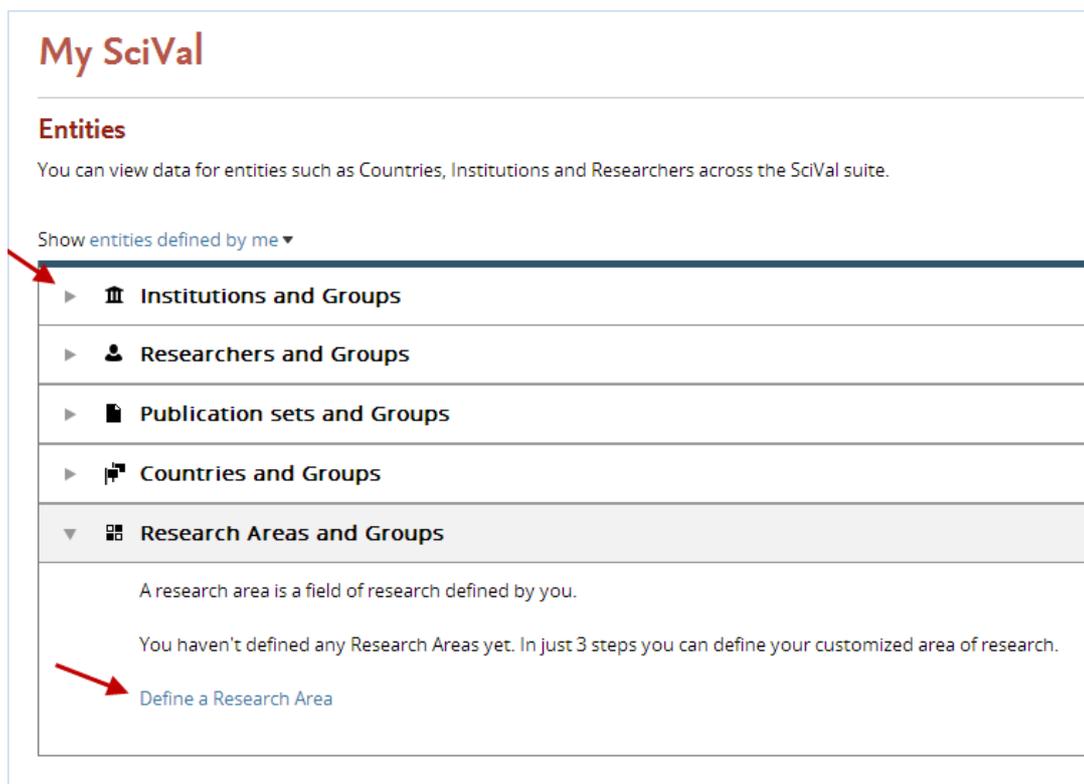
In SciVal all data can be filtered by subject area. You can choose from 27 main categories and 334 subcategories in the Scopus journal classification. Use any of these journal categories as a filter for further analysis.

- The Scopus journal category filter is present in each of the three modules (Overview, Benchmarking and Collaboration).
- Click the arrow next to each journal category to display the subcategories.



## 2.4 Selecting entities

An entity is anything that can be viewed in SciVal in terms of academic performance. An entity can be an institution, country, researcher, publication set, or research area. It can also be groupings of these, such as a group of researchers.



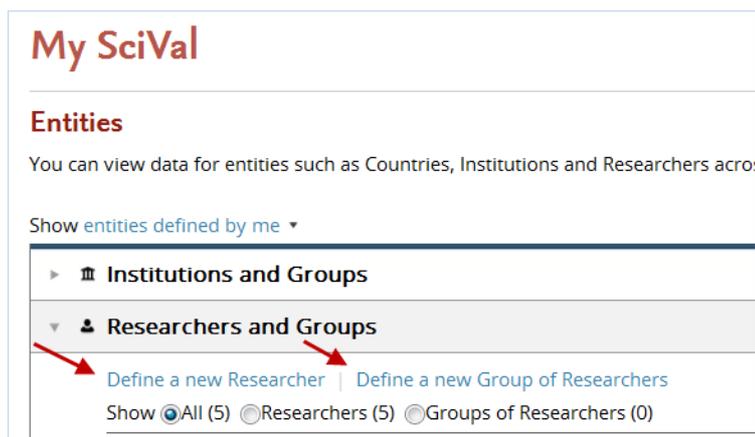
**Institutions and groups of institutions.** An institution is any organization engaged in research activity. It can be an academic, corporate or governmental institution, for example.

An Institution is a type of entity in SciVal. Technically, an institution is defined in SciVal as a collection of one or more Scopus affiliations. Often an institution has multiple affiliations because some of its parts, like hospitals or research institutes, can be assigned their own affiliation in Scopus.

Multiple institutions can be combined into another type of selectable SciVal entity: a group of institutions. A number of predefined groups of institutions are available in SciVal, including:

- institutional alliances such as LERU and Universitas 21
- constituent states and provinces of various countries. These include the U.S. states, each of which is made up of all institutions in that state.

**Researchers and groups of researchers.** A researcher is someone who has authored one or more publications. You can define researchers in SciVal. You can also create groups of researchers.



You can use groups of researchers to model different “what-if” scenarios. For example, you can determine what happens to your team’s performance if you add researchers X and Y.

A publication set is a subset of the publications of a particular researcher defined in SciVal. This is useful when you want to create a selection of a researcher’s most cited publications or a set of publications on a particular topic.

Researchers are updated weekly with any new publications, but a publication set is fixed and never automatically updated with new publications. You can, however, manually add new publications to a publication set. Citation counts will always be updated.

You can combine multiple publication sets into a new entity: a group of publication sets.

**Countries and groups of countries.** A country is a type of entity in SciVal representing a nation state or semi-autonomous part of a state. Publications are assigned to countries by picking up the country mentioned in the publication. If not present, we take the country from the Scopus affiliation mentioned in the publication.

A special type of country is the World. This entity represents the total publication output worldwide, in other words: all publications from Scopus between 1996 and now. It is particularly useful as a benchmark.

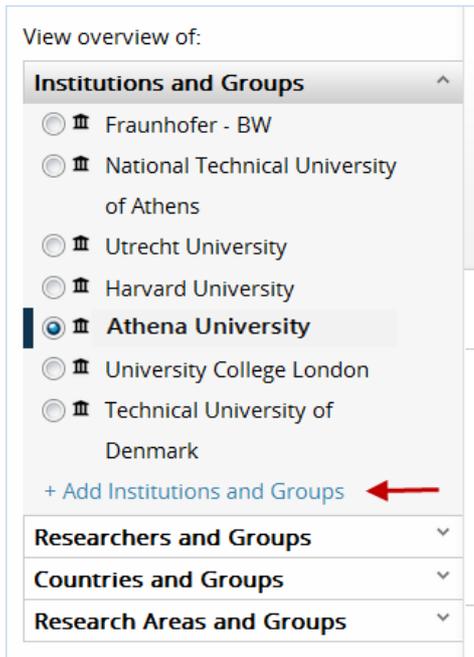
Multiple countries can be combined a new entity: a group of countries. A number of predefined groups of countries are available in SciVal. These include;

- world regions such as North America, Europe and Asia Pacific
- international organizations such as the European Union, ASEAN and the G20
- various groupings of emerging economies such as Developing-8, CIVETS and BRICS

**How to use the entity selection panel.** Use the entity selection panel to select the entities that you want to analyze. It is on the left side of the screen in each of the three modules. Think of the entity selection panel as a workspace. All your entities of interest are in one clear and organized place.

Choose from the thousands of pre-defined entities in the SciVal database: institutions or countries. Or define your own entities. Your self-defined entities can be researchers, research teams, publication sets or even research areas.

To add additional items to the entity selection panel, click the “Add” link at the bottom of the currently opened section:



Start typing the name of the entity you will like to add. Then click on the name when it appears in the search results. You can also click on the “Define” links to define an entirely new entity.

You can safely remove entities from the panel. They will not be permanently deleted. You can add them back at any time.

**Viewing the list of entities defined by you.** To see an overview of all the entities defined by you, click on “My SciVal” in the top right corner of your screen.

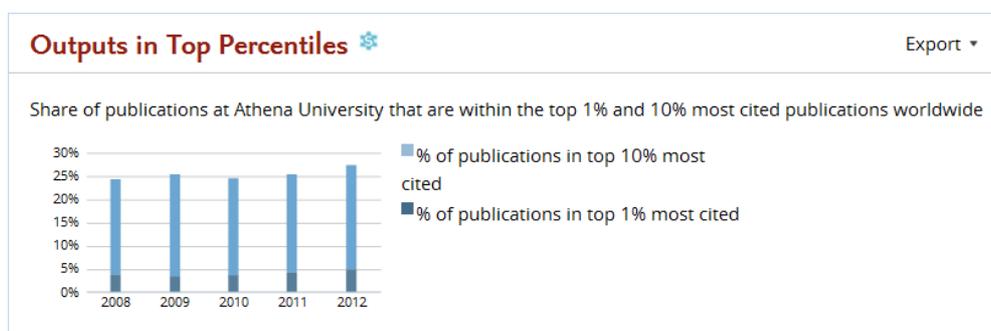
## 3 How you can use SciVal

### 3.1 How can my institution demonstrate research excellence?

A number of quality metrics are available in SciVal to demonstrate research excellence at your institution.

Use highly cited publications and publications in leading journals. Two metrics often used to illustrate excellence of research are Outputs in Top Percentiles and Publications in Top Journal Percentiles. These show how much of your institution's publication output was good enough to rank among the world's top publications.

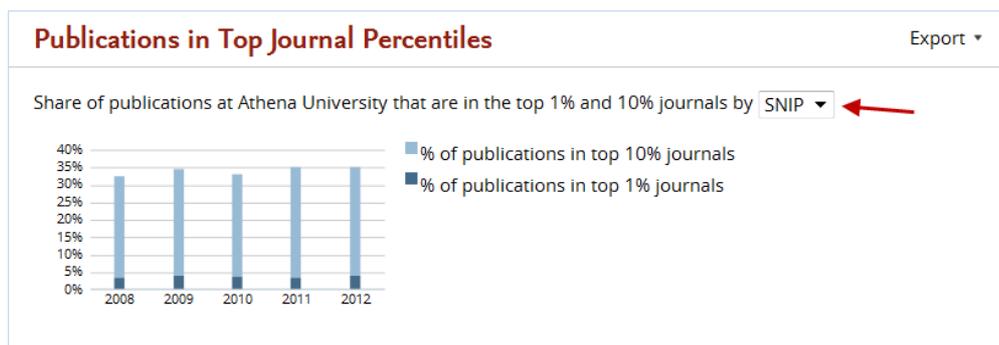
1. Go to the Overview module and select your institution.
2. Go to the Publications tab and find the Outputs in Top Percentiles section. This shows the share of your institution's publications that are within the top 1% and top 10% of the most cited publications worldwide.



3. As you can see in the chart above, Athena University had almost 25% or more publications in the top 10 percentile of the most cited publications worldwide from 2008 – 2012.
4. The Publications in Top Journal Percentiles section shows how many of your institution's publications were in the top 1% and 10% of the world's journals.

These top journals are selected by measuring all journals by either SNIP or SJR and selecting the top-ranking ones. You can toggle between SNIP and SJR using the dropdown menu. See [www.journalmetrics.com](http://www.journalmetrics.com) for more details on SNIP and SJR.

- SNIP (Source-Normalized Impact per Paper) – This measures the citation impact of a journal. SNIP is normalized for the journal's subject field, weighting citations based on the number of expected citations in that field.
- SJR (SCImago Journal Rank) - This measures the prestige of citations received by a journal. The subject field, quality and reputation of the citing journal have a direct effect on the value of a citation.



- As you can see in the chart above, 30% to 35% of the publications at Athena University from 2008 – 2012 were published in the top 10 journals worldwide (measured by SNIP).
- Go to the Benchmarking module to see the Outputs in Top Percentiles and Publications in Top Journal Percentiles metrics for your institution over a longer time period (1996 to present). You also have additional metric options available here. And you can compare your institution to other institutions, or the national or global average.

**Demonstrate research strengths.** Do you have access to the Competencies section in the Overview module? Then this offers another way to demonstrate excellence.

SciVal's competency analysis identifies research strengths of your institution – granular areas of research where your institution is a global leader. A competency shows where an institution has a leading position compared to other institutions in terms of number of publications, number of highly cited publications or innovation - the recentness of cited publications.

The competency analysis uses a methodology based on citation patterns called co-citation analysis. Highly cited publications are clustered based on co-citation counts. The clusters are grouped together into competencies.

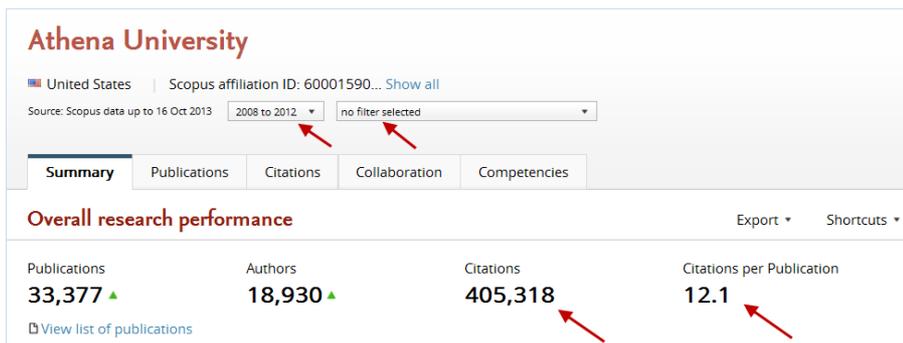
The analysis is always based on five years of data. If you select 2012, the analysis is based on data from 2008 up until and including 2012.

For more information, see: [How can my institution identify its research strengths?](#)

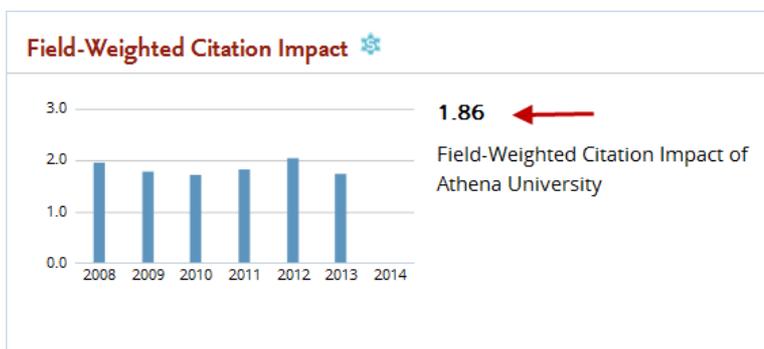
### 3.2 How can my institution evaluate the impact of our research portfolio?

To evaluate the impact of your research, you can use SciVal to analyze your institution's citation metrics. Useful metrics include Citation Count, Citations per Publication and Field-Weighted Citation Impact.

- Go to the Overview module and select your institution from the left-hand entity selection panel (Athena University in this example).
- As you can see, Athena University has averaged 12.1 citations per publications over a five year time period.
- If you are interested in a particular field of research or time period, adjust the filters for year range and Scopus journal category.



- Go to the Citations tab to see the Field-Weighted Citation Impact of your institution. This metric adjusts for the differences in citation behavior across disciplines.
  - The Field-Weighted Citation Impact is the number of total citations received divided by the total citations expected, based on the global average for the field.
  - More than 1.00 means that citations are more than expected.
  - Less than 1.00 means the citations are less than expected.
- Athena’s impact is 1.86. Citations are 86% more than expected based on the global average.



- Where does your institution have the highest impact? Go to the Overview module (Summary tab) and scroll down to “Performance by Journal Category.”

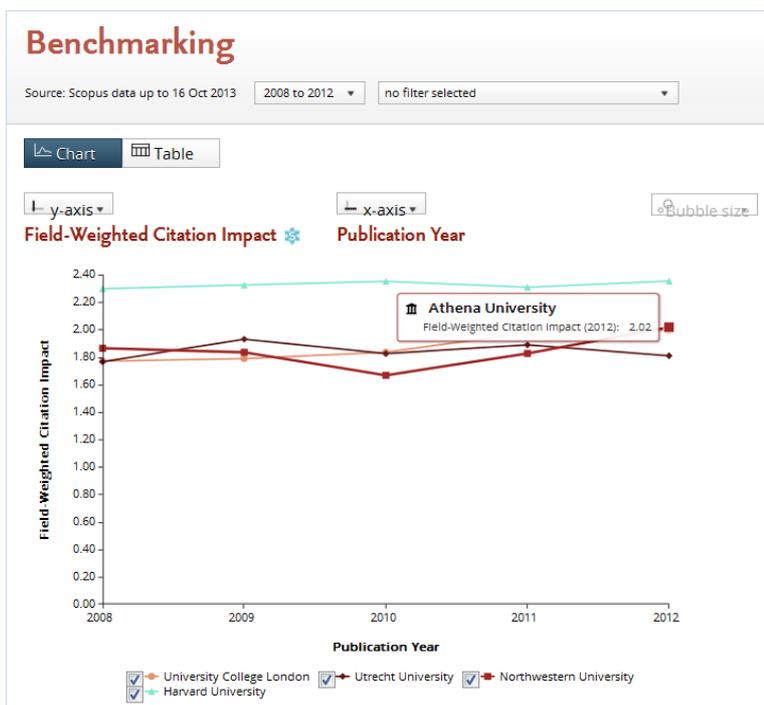
**Publications by Journal Category** | Export

Publications at Northwestern University:

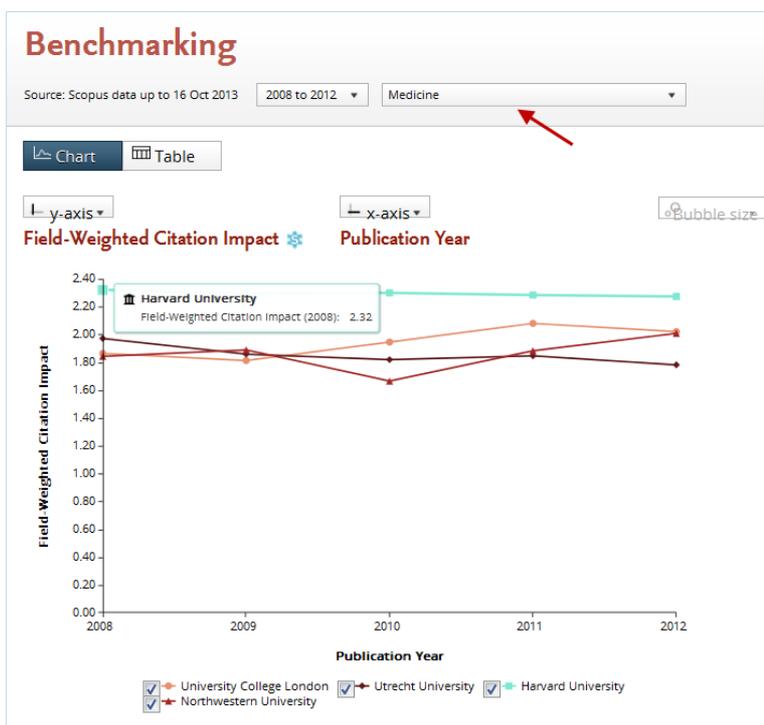
Table | Pie chart | Bar chart

Journal Category	Publications	Citations	Authors	Field-Weighted Citation Impact
▼ Athena University	33,387 ▲	408,275	18,880 ▲	1.84
▶ Medicine	13,157 ▲	159,587	8,456 ▲	1.86
▶ Biochemistry, Genetics and Molecular Biology	5,446 ▲	91,707	5,885 ▲	1.75
▶ Physics and Astronomy	4,642 ▲	60,889	3,179 ▲	2.23
▶ Engineering	3,870 ▲	34,604	3,430 ▲	1.66
▶ Chemistry	3,723 ▲	66,177	3,376 ▲	2.03

- To compare the impact of your institution’s publications against other institutions or the national average, go to the Benchmarking module.



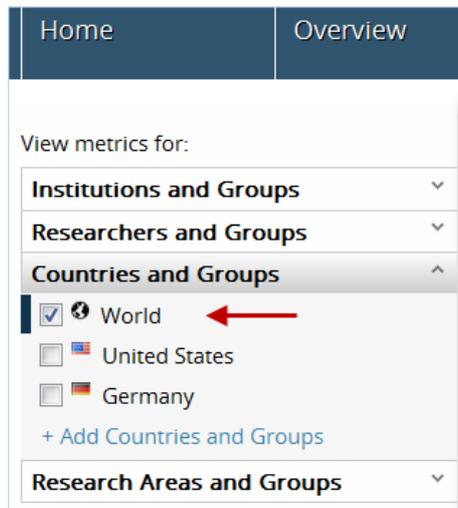
8. You can also compare the same institutions within a particular subject area. Select your field of interest from the 27 main categories and 334 subcategories within the Scopus journal classification.



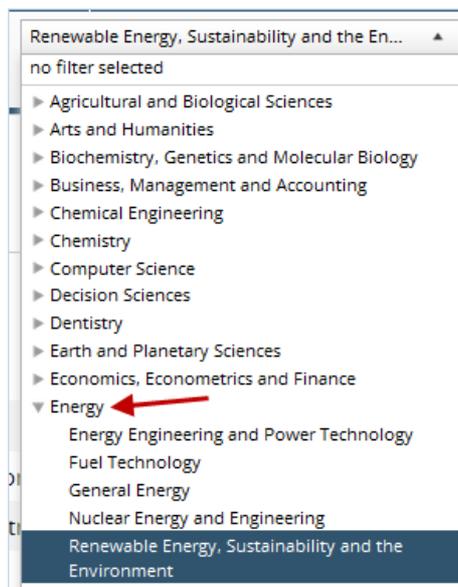
### 3.3 How can my institution attract talented researchers?

Who are the most talented researchers in my field? Which institutions are they associated with? And how do I find them? The best approach to do this in SciVal is to first determine the top institutions in your field, and then identify the top researchers at those institutions.

1. Go to the Overview module
2. Select your country or the world in the entity selection panel on the left-hand side.



3. Using the dropdown menu at the top of the page, select your field from the 27 main categories and 334 subcategories in the Scopus journal classification. Say you are interested in renewable energy and sustainability:



4. After selecting your field, you can now see the top institutions in that field, based on number of publications and citations.

**World**

Source: Scopus data up to 16 Oct 2013    2008 to 2012    Renewable Energy, Sustainability and the En...

Summary    Publications    Citations    **Institutions**

**Institutions in the World**

Below is a list of Institutions in the World:

Institution	Publications	Citations	Authors
1. Technical University of Denmark	532 ▲	8,219	613 ▲
2. National Renewable Energy Laboratory	480 ▲	7,292	542 ▲
3. National Institute of Advanced Industrial Science and Technology	394 ▲	5,878	452 ▲
4. Chinese Academy of Sciences	709 ▲	5,442	1,242 ▲
5. Tsinghua University	638 ▲	5,171	1,019 ▲

5. Now take a closer look at these institutions. Go to the entity selection panel and select one of the top institutions.

Home    Overview

View metrics for:

**Institutions and Groups** ^

- University College London
- Northwestern University**
- Harvard University
- Utrecht University
- Stanford University

Technical University of

- Technical University of Cluj-Napoca
- Technical University of Crete
- Technical University of Denmark**
- Technical University of Kosice
- Technical University of Liberec
- Technical University of Lisbon
- + Define a new Institution
- + Define a new Group of Institutions

6. On the Summary tab, you can see the top authors at that institution within the selected field, based on number of publications, number of received citations, or *h*-index.
7. You can export the list of authors to a spreadsheet for further analysis, or click on an author's name to see their publication profile.

**Technical University of Denmark**

Denmark | Scopus affiliation ID: 60007489... [Show all](#)

Source: Scopus data up to 16 Oct 2013 | 2008 to 2012 | Renewable Energy, Sustainability and the En...

Summary | Publications | Citations | Collaboration | Competencies

**Overall research performance** Export Shortcuts

Publications	Authors	Citations	Citations per Publication
<b>532</b> ▲	<b>613</b> ▲	<b>8,219</b>	<b>15.4</b>

[View list of publications](#)

**Top authors** Export

Top 5 authors at the Technical University of Denmark, by number of citations received

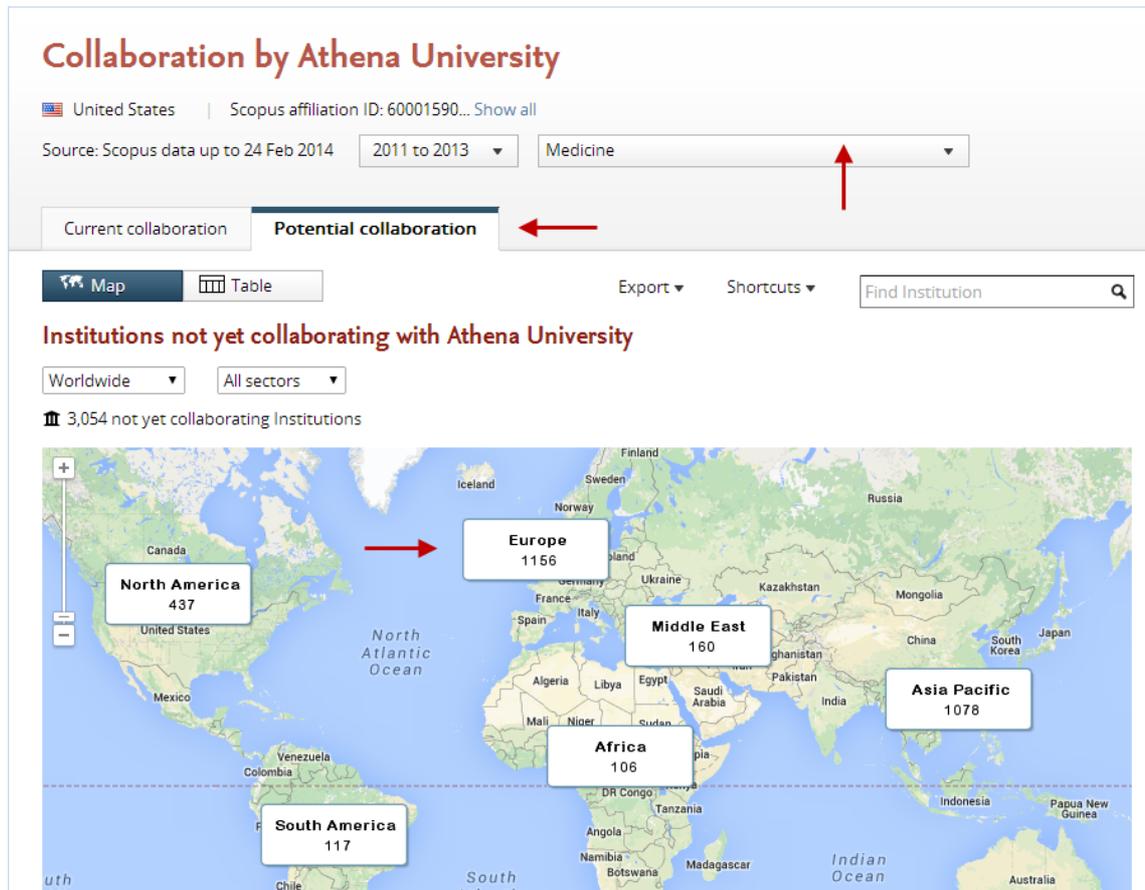
	number of citations received	Citations	<i>h</i> -index *
Krebs, F.C.	53	4,472	57
Jørgensen, M.	22	1,888	31
Norrman, K.	10	1,328	23
Nielsen, T.	3	771	20
Gevorgyan, S.A.	9	472	18

\* *h*-index is based on an author's publications from 1996 onwards

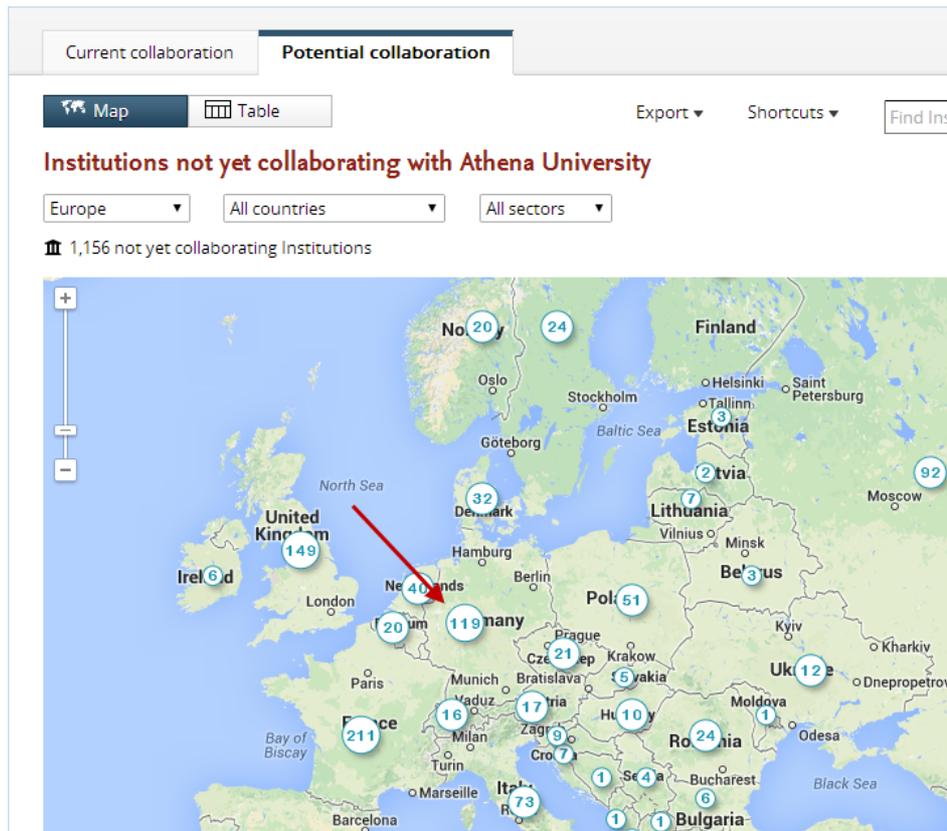
### 3.4 How can my institution find collaboration partners?

International collaborations can increase your impact and visibility, which could lead to more funding opportunities. How can you identify suitable international collaboration partners? Which countries should we focus on? And which institutions are active in which disciplines?

1. Let's say that your institution is Athena University. It is located in the U.S. and it is looking for a collaboration partner in Europe for its expanding medical school.
2. Go to the Potential Collaboration tab in the Collaboration module. Select the Scopus journal category "Medicine" from the dropdown menu at the top of the page.
3. The analysis shows 1,156 institutions in Europe that haven't yet collaborated with Athena. In other words: Athena has not co-authored any publications with these institutions within the selected time period.



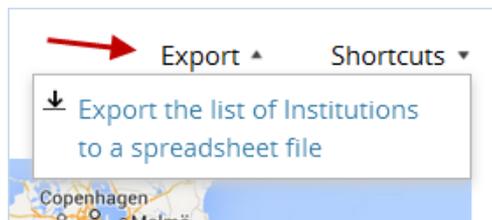
4. Click on Europe to see which European countries are active in medicine. The numbers in the white circles represent the number of institutions in each country that have not yet collaborated with Athena.
5. Let's take a closer look at Germany, which has 119 institutions that have not yet collaborated with Athena.



6. Click on Germany to see which institutions in this country are active in medicine but are not yet collaborating with Athena in this field.
7. Each orange circle in Germany represents an institution. The number inside the circle shows the publication output at that institution within the selected field.
8. Humboldt-Universitat zu Berlin stands out. There are 974 authors within medicine at this institution, with 850 publications in this field.



9. You can also view the list of institutions in a table and sort the 100 most productive institutions by citation impact, using the metrics Citation Count, Citations per Publication and Field-Weighted Citation Impact.
- 10 To view only hospitals and other medical institutions in Germany, select "Medical" from the rightmost of the drop-down menus along the top of the map.
- 11 You can export a list of all institutions to a spreadsheet for further review.



- 12 For more details on this institution, click on the marker for Humboldt in the map to open the institutional details pop-up. Here, you can compare the research output of Humboldt to the output of your own institution. You can also see a list of potential co-authors at Humboldt.
- 13 In the institution details pop-up, select "View a high-level performance overview of Humboldt-Universität zu Berlin" from the Shortcuts menu to view Humboldt in the Overview module and explore this institution in even more detail. In which fields of medicine are they most active? Who are the top authors at that institution? How much of their publication output is among the most cited worldwide, and how much of it is published in the top journals? How much are they collaborating internationally?
- 14 Go back to the Collaboration module and select Humboldt from the entity selection panel. You can now see who they are already collaborating with. Are they working mostly with other German institutions or do they have a large international collaboration network?
- 15 In the Benchmarking module, select Humboldt and Athena University from the entity selection panel. Now you can compare the two institutions by various metrics. Does Humboldt have more or less citation impact than your institution?

### 3.5 How can my institution identify its research strengths?

Do you have access to SciVal's "Competencies" section? Then you can use SciVal to identify or demonstrate areas of research strength at your institution. You may even identify research strengths of your institution that you are not yet aware of.

For each of these research strengths, SciVal shows you:

- Which institutions are most active in this field, and how is your institution is positioned?
- Who are your institution's collaboration partners in this field? Who are you not yet collaborating with?
- Which researchers at your institution are most active in this field?
- What is your institution's unique contribution to this field?
- What are the overall trends – is this is an emerging or declining field?
- How was this field identified as a competency of your institution?

**How SciVal identifies your research strengths.** The competency analysis identifies research strengths of your institution – granular areas of research where your institution is a global leader. Your institution has a leading position compared to other institutions, in terms of number of publications, number of highly cited publications or innovation - the recentness of cited publications.

The competency analysis uses a methodology based on citation patterns called co-citation analysis. Highly cited publications are clustered based on co-citation counts. The clusters are grouped together into competencies.

The analysis is always based on five years of data. If you select 2012, the analysis is based on data from 2008 up to and including 2012.

To see the list of your institution's research strengths:

1. Go to the Overview module and select your institution.
2. Click on the Competencies tab.
3. Select the Table view to see the list of research strengths.

Summary Publications Citations Collaboration **Competencies**

**Browse competencies** Search for competencies

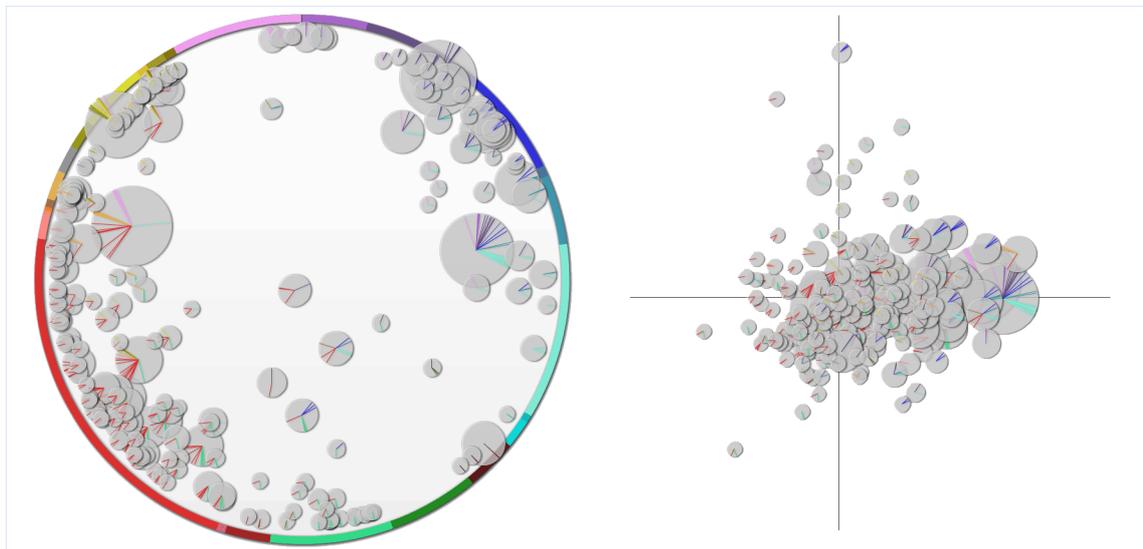
Year: 2012 ← Export Shortcuts

**Competencies of Athena University**  
Competencies of Athena University in 2012, based on an analysis of publications over the period 2008-2012

Filter competencies by Table Circle Matrix

ID	Keywords	Most active authors	Publications	Citations
DC #1	Stroke; Muscles; Rehabilitation	Rymer W.Z., Perreault E.J., Heckman C.J.	440 ▲	2,823
DC #2	Defibrillators, Implantable; Heart Failure; Heart Rate	Yancy C.W., Gheorghide M.M., Kadish A.H.	229 ▲	10,472
DC #3	Aortic Aneurysm, Abdominal; Patients; Blood Vessel Prosthesis Implantation	Bilimoria K.Y., Fry D.E., Grobman W.A.	122 ▲	1,262
DC #4	participant; Emotions; effect	Galinsky A.D., Richeson J.A., Molden D.C.	192 ▲	1,289

- Select the Circle and Matrix views to see the research strengths plotted on a graph.
  - The Circle plots the competencies on a big wheel representing the world of science. This allows you to spot in which subject areas your institution’s competencies are concentrated, and how interdisciplinary they are. The closer a competency to the center of the wheel, the more interdisciplinary that competency is.
  - The Matrix plots the share of your institution within each competency against the growth of that field of research. This allows you to, for instance, spot emerging fields of research where your institution isn’t yet playing a leading role.



### 3.6 What is the impact of adding a new researcher to my team?

SciVal allows you to do “what if” scenario modeling. If I add researcher X to my team, how would my team perform?

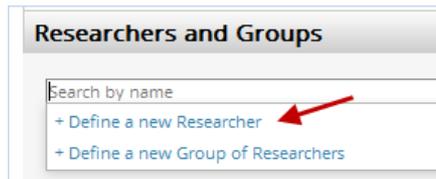
Let’s define a research team and then compare its performance to a team made up of the current

team plus a new recruit.

1. Go to the Benchmarking module.
2. In the entity selection panel (on the left side of screen), click "Add Researchers and Groups".



3. Click "Define new researcher".



4. Define your team member.

### Define a new Researcher

Combine author name variants into a single researcher

STEP 1: Search
STEP 2: Select
STEP 3: save

You searched for: Authname (**Hayes, M.G.**) and Institution (**Northwestern University**)

	Authors	Documents	Subject area	Affiliation	Country
1	<input type="checkbox"/> <b>Mayes, Gregory</b> <small>Mayes, Gregory</small> <a href="#">Show recent documents</a>		Medicine, Agricultural and Biological Sciences, Multidisciplinary, Immunology and Microbiology, Arts and Humanities, Biochemistry, Genetics and Molecular Biology, Social Sciences, Pharmacology, Toxicology and Pharmaceutics, Neuroscience, Environmental Science	<b>Athena University</b> Weinberg School of Medicine	
2	<input type="checkbox"/> <b>Mayes, G.M.</b> <small>Mayes, G.M.</small> <a href="#">Show recent documents</a>	6	Medicine, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy	<b>Athena University</b> Weinberg School of Medicine	ted States
3	<input type="checkbox"/> <b>Mayes, Gregory, M</b> <small>Mayes, Gregory, M</small> <a href="#">Show recent documents</a>		Biochemistry, Genetics and Molecular Biology, Medicine	<b>Athena University</b> Weinberg School of Medicine	

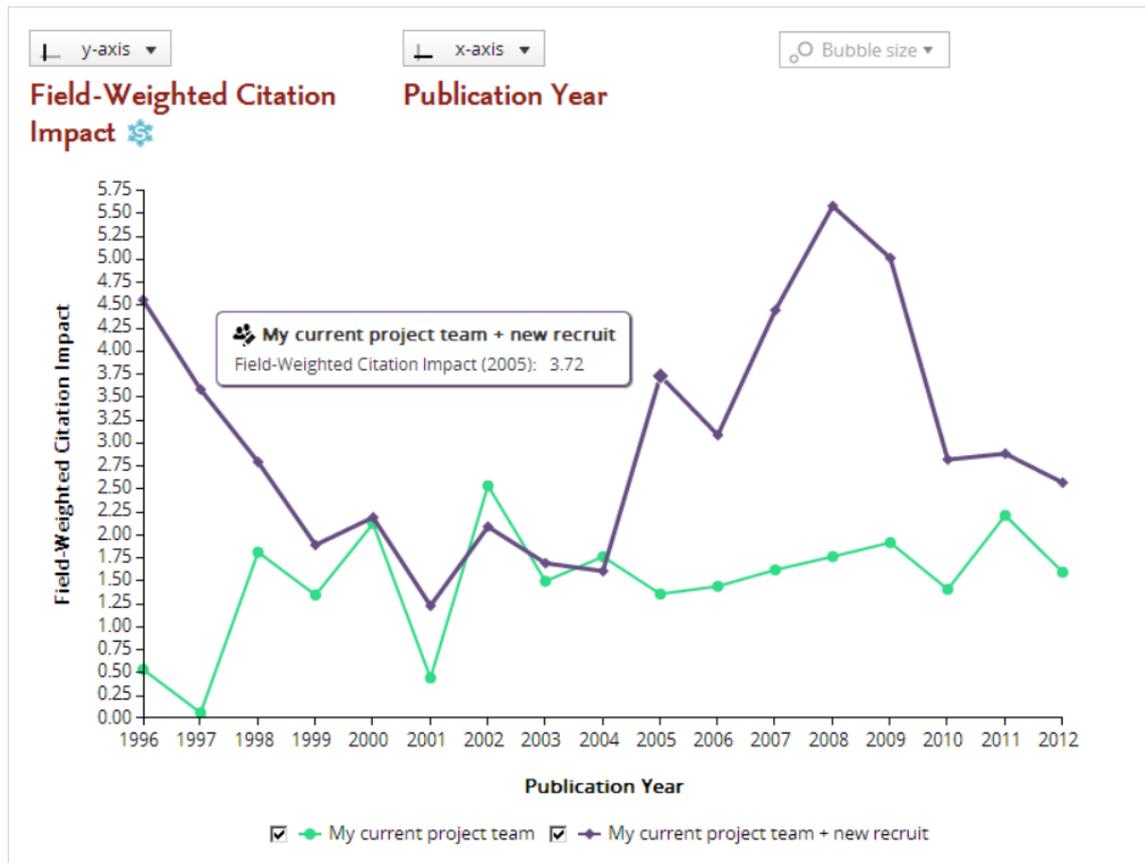
Previous step
Review publications
Next step

5. Follow this process for each researcher on your team.
6. Now go to the entity selection panel and click "Define a new Group of Researchers".



7. Select your researchers from the left side of your screen and drag each one across to the right side of the screen.





11 Compare the performance of the current team versus the expanded team. As you can see, the addition of the new recruit would significantly strengthen the performance of your team.

12 Try a few additional metrics. Other useful metrics for comparison include Scholarly Output, Citation Count, Citations per Publication, and Collaboration Impact.

## 4 Data and metrics

### 4.1 What is the source of the data in SciVal?

SciVal is based on data from Scopus, the world's largest abstract and citation database for peer-reviewed publications.

The Scopus database covers over 30 million publications from 1996 until the present:

- 21,000 serials from 5,000 publishers. These include:
  - 20,000 peer-reviewed journals
  - 390 trade publications
  - 370 book series
- 5.5 million conference papers

For detailed information on the data used in SciVal, see the SciVal Metrics Guidebook.

[Download the SciVal Metrics Guidebook](#) (PDF format)

### 4.2 How current is the data?

Publications, author and affiliation profiles in SciVal are updated every week. So our data is almost in total sync with Scopus.

SciVal does a weekly check for new publications in Scopus. Researchers in SciVal are then automatically updated with any new publications found in Scopus.

### 4.3 What publication types can you use?

SciVal includes all types of publications that are classified by Scopus. You can refine your analysis based on the following types of publications:

- articles
- reviews
- conference papers
- editorials
- short surveys
- books

### 4.4 Which metrics are available to use in SciVal?

SciVal uses a broad range of metrics, including the Snowball Metrics. The metrics can be divided into four categories:

- **Productivity metrics**  
These measure research productivity
- **Citation impact metrics**  
These measure the impact of citations
- **Collaboration metrics**  
These measure the benefits of collaboration
- **Disciplinary metrics**  
These measure multidisciplinaryity

The Metrics Guidebook discusses each SciVal metric in detail. The guidebook offers suggestions on how and when to apply each metric.

[Download the SciVal Metrics Guidebook](#) (PDF format)

The available metrics are:

Scholarly Output	The number of publications of a selected entity	 Snowball Metric
Journal Count	The number of journals in which an entity's publications have appeared	
Category Count	The number of journal categories in which a selected entity's publications have appeared	
Citations Count	Total citations received by publications of the selected entities	 Snowball Metric
Citations per Publication	The average number of citations received per publication	 Snowball Metric
Cited Publications	Publications that have received at least one citation	
Number of Citing Countries	The number of distinct countries represented by the publications citing a selected entity	
Field-Weighted Citation Impact	The ratio of citations received relative to the expected world average for the subject field, publication type and	 Snowball Metric

	publication year	
Collaboration	The extent of international, national and institutional co-authorship	 Snowball Metric
Collaboration Impact	The average number of citations received by publications that have international, national or institutional co-authorship	
Academic-Corporate Collaboration	Publications whose affiliation information contains both academic and corporate organization types	
Academic-Corporate Collaboration Impact	The average number of citations received by publications that have academic-corporate collaboration	
Outputs in Top Percentiles	Publications of a selected entity that have reached a particular threshold of citations received	 Snowball Metric
Publications in Top Journal Percentiles	The set of an entity's publications that have been published in the world's top journals	
<i>h</i> -index	A measure of both the productivity and publication impact of an entity, which depends on both the number of publications and the number of citations they have received	 Snowball Metric

## 4.5 What are Snowball Metrics?

The Snowball Metrics were initiated by eight highly successful research universities as a manageable set of metrics that capture the strategic aspects of research performance. The ambition is for the Snowball Metrics to become the global standard for the higher education sector. The agreed and tested definitions are shared free of charge with the research community.

Elsevier supports Snowball Metrics as a recognized industry standard and has implemented many of the metrics in SciVal. You can recognize these metrics by the following icon:



More information about Snowball Metrics is available on [snowballmetrics.com](https://snowballmetrics.com):

- [More info about Snowball Metrics](#)
- [Download the Snowball Metrics Recipe Book \(PDF format\)](#)

## 5 The Overview module

### 5.1 What is the Overview module?

The Overview module provides a high-level overview of your institution's research performance based on publications, citations, and collaboration.

In addition, you can review the performance of any of the 4,600+ institutions and 200+ countries in our database. You can even define your own research areas and groups of researchers and review their performance.

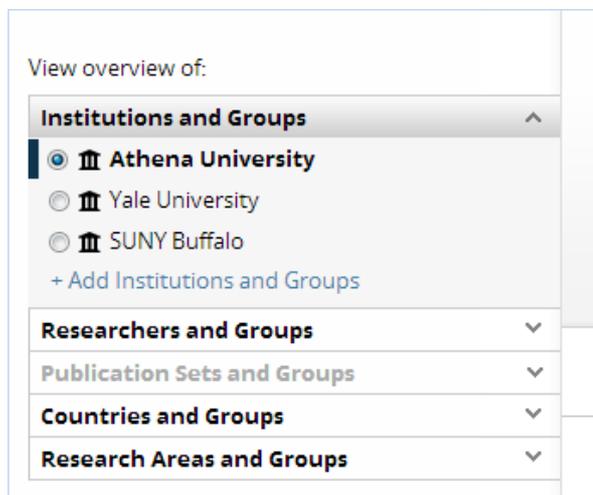
All data can be filtered by a specific subject area. The data can be exported, and you can review the underlying list of publications behind every publication count.

### 5.2 Working with the Overview module

#### 5.2.1 Selecting an entity

Use the entity selection panel on the left-hand side to select the entity you want to view.

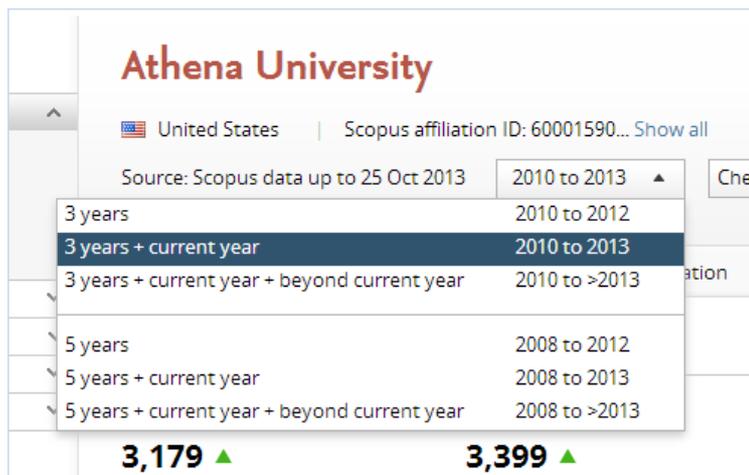
1. Open the section that contains the entity you want, e.g. "Institutions and Groups" for an institution.
2. If the entity you want is not listed, click on the "Add" link and start typing the name, then click on the name when it appears in the search results.
3. You can also define your own groups of researchers and research areas.



#### 5.2.2 Selecting a year range

You can view publication data for a period of either three or five years. Use the year range selector at the top of the page to select the desired year range.

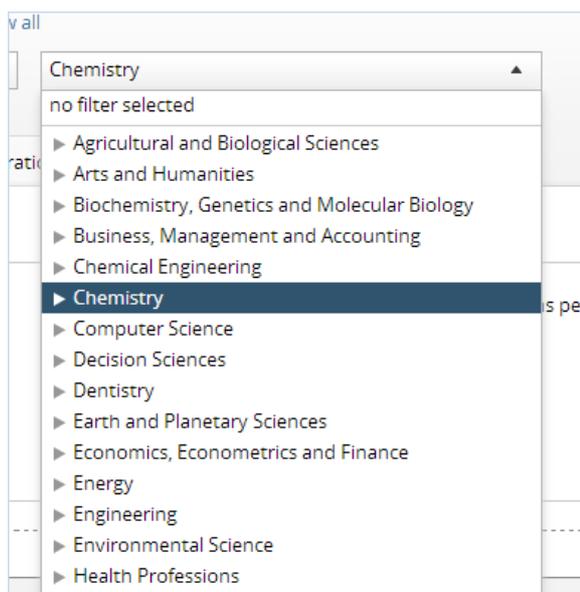
Optionally, you can also include the current year and future publications. However, you may want to exclude this because, by the end of the current year, Scopus has only received and indexed a certain portion of the current year's journals from other publishers.



### 5.2.3 Filtering by journal category

Interested in evaluating or comparing your performance within a specific discipline? Choose from 27 categories and 334 subcategories in the Scopus journal classification.

1. Use the filter dropdown menu at the top of the page to select a specific journal category.



2. The subcategories appear when you click on the arrow in a category.
3. After you select a journal category, all data shown in SciVal will be filtered by that category. That is to say, the data will be limited to publications in journals within that category.
4. Choose "no filter selected" from the menu to remove the filter and show all data.

## 5.3 How can you use the Overview module?

### 5.3.1 Get an overview of your institution's research performance

You can get an overview of your institution's research performance in terms of publications and citations, and answer questions such as:

- Who are the most prolific or most cited authors at my institution?
- In which disciplines is my institution most active?
- In which journals is my institution publishing the most?
- What are the most cited publications of my institution?
- Who are the top collaboration partners of my institution?

To view your institution in Overview:

1. Go to the Overview module and make sure your institution is selected in the entity selection panel on the left-hand side.
2. Select the year range you want from the first dropdown menu at the top of the page when you click on the arrow in a category.
3. Do you want to view your institution's research performance within a specific discipline (such as chemistry or engineering)? Then select a journal category from the second dropdown menu at the top of the page

Athena University

United States | Scopus affiliation ID: 60001590... Show all

Source: Scopus data up to 25 Oct 2013 | 2010 to 2013

Chemistry

no filter selected

- ▶ Agricultural and Biological Sciences
- ▶ Arts and Humanities
- ▶ Biochemistry, Genetics and Molecular Biology
- ▶ Business, Management and Accounting
- ▶ Chemical Engineering
- ▶ Chemistry
- ▶ Computer Science
- ▶ Decision Sciences
- ▶ Dentistry
- ▶ Earth and Planetary Sciences

Summary | Publications | Citations | Collaborations

**Overall research performance**

Publications	Authors
<b>3,179</b> ▲	<b>3,399</b> ▲

[View list of publications](#)

4. Click between the Summary, Publications and Citations tabs to get an overview of your institution's research performance in terms of publications and citations.

### 5.3.2 Explore the publication output of your institution

You can see the total list of publications at your institution by clicking on "View list of publications" on the Summary tab. The most cited publications are at the top.

- The filter options on the left-hand side allow you to explore your institution's publications in various ways. For example, you can see the top authors and journals, the top collaborating institutions and countries, and the top keywords.
- Try filtering the publications by any of the filter options. The breakdown is now recalculated to reflect the new subset.

**Publications at Athena University (2010 to 2013)**

27,304 publications

Authors	Title	Authors	Year	Journal	Citations
<input checked="" type="checkbox"/> All authors <input type="checkbox"/> Glurgiu, G. 368 <input type="checkbox"/> Eusebi, R. 367 <input type="checkbox"/> Krutelyov, V. 365 <input type="checkbox"/> Vila, I. 365 <input type="checkbox"/> Iashvili, I. 364 <a href="#">Show more</a>	Review of particle physics <a href="#">View abstract</a>   <a href="#">View in Scopus</a>	Beringer, J. et al.	2012	Physical Review D - Particles, Fields, Gravitation and Cosmology	1,333
<input checked="" type="checkbox"/> All institutions <input type="checkbox"/> Athena University 27,304 <input type="checkbox"/> Harvard University 1,286 <input type="checkbox"/> Johns Hopkins University 1,038 <input type="checkbox"/> University of California at Los Angeles 980 <input type="checkbox"/> University of Chicago 977 <a href="#">Show more</a>	Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC <a href="#">View abstract</a>   <a href="#">View in Scopus</a>	Chatrchyan, S. et al.	2012	Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics	888
<input type="checkbox"/> Countries <input type="checkbox"/> Journals <input type="checkbox"/> Journal Categories <input type="checkbox"/> Keywords <input type="checkbox"/> Publication years <input type="checkbox"/> Publication types	Emerging applications of stimuli-responsive polymer materials <a href="#">View abstract</a>   <a href="#">View in Scopus</a>	Stuart, M.A.C. et al.	2010	Nature Materials	750
	Biological, clinical and population relevance of 95 loci for blood lipids <a href="#">View abstract</a>   <a href="#">View in Scopus</a>	Teslovich, T.M. et al.	2010	Nature	711
	The diagnosis of dementia due to Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease <a href="#">View abstract</a>   <a href="#">View in Scopus</a>	McKhann, G.M. et al.	2011	Alzheimer's and Dementia	623
	Ultrahigh porosity in metal-organic frameworks <a href="#">View abstract</a>   <a href="#">View in Scopus</a>	Furukawa, H. et al.	2010	Science	610
	Diagnosis and management of acute myeloid leukemia in adults: Recommendations from an international expert panel, on behalf of the European LeukemiaNet <a href="#">View abstract</a>   <a href="#">View in Scopus</a>	Döhner, H. et al.	2010	Blood	494
	Gold nanoparticles for biology and medicine <a href="#">View abstract</a>   <a href="#">View in Scopus</a>	Giljohann, D.A. et al.	2010	Angewandte Chemie - International Edition	434

### 5.3.3 Get an overview of your institution's research strengths

Do you have access to the Competencies tab? Then you can also see an analysis of your institution's research strengths, or "competencies" as they are known in SciVal. You can also see the national research strengths of your country. Or you can see the strengths of any other institution or country.

The competencies analysis identifies areas of research in which your institution is a global leader in terms of publications, citations, or innovation (here defined as citing recent research). This is the same analysis that's shown in SciVal Spotlight.

You can get detailed information on each of these areas, such as:

- How is your institution positioned in this field?
- Which researchers are most active in this field?
- What is your institution's unique contribution to this field?
- What are the overall trends – is this an emerging or declining field?

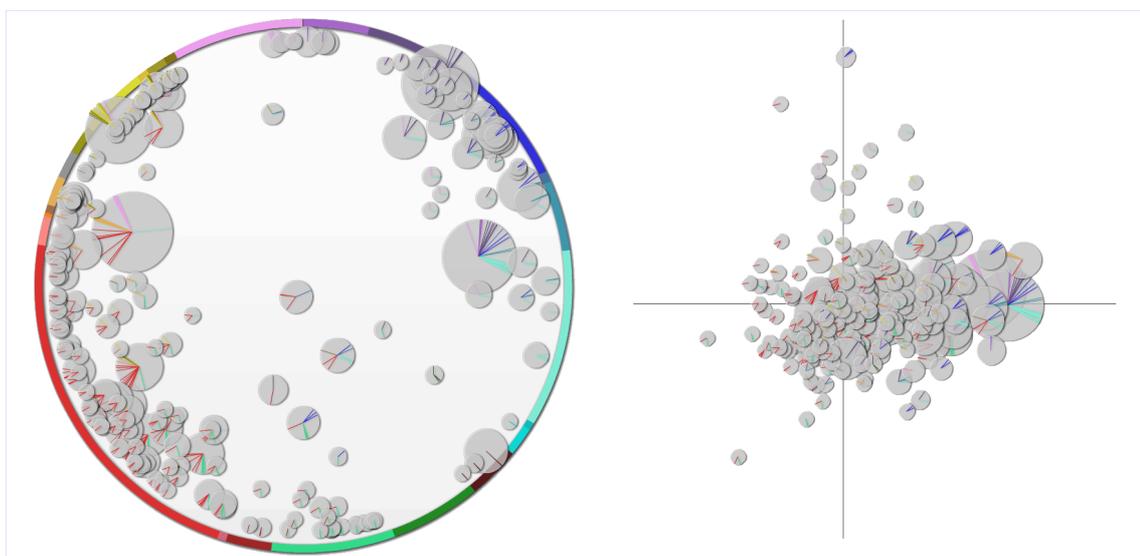
**View the list of research strengths.** To see the list of your institution's research strengths:

1. Go to the Overview module and select your institution.
2. Click on the Competencies tab

### 3. Select the Table view

**View your research strengths in a graph.** In addition to the table view, there are two different types of visualizations available to you:

- The Circle plots the competencies on a big wheel representing the world of science. This allows you to spot in which subject areas your institution's competencies are concentrated, and how interdisciplinary they are. The closer a competency to the center of the wheel, the more interdisciplinary that competency is.
- The Matrix plots the share of your institution within each competency against the growth of that field of research. This allows you to, for instance, spot emerging fields of research where your institution isn't yet playing a leading role.



**Analyze your research strengths in detail.** Click on a competency in Table, Circle or Matrix to open a pop-up window where you can explore that competency in detail. For instance, this shows you:

- Which institutions are most active in this field, and how is your institution positioned?
- Who are your institution's collaboration partners in this field? Who are you not yet collaborating with?
- Which researchers at your institution are most active in this field?
- What is your institution's unique contribution to this field?
- What are the overall trends – is this an emerging or declining field?
- How did SciVal identify this field as a competency of your institution?

**Combine competencies.** Are two or more competencies actually part of the same area of research strength at your institution? Then you can combine them in SciVal.

1. In the Overview module, go to the entity selection panel on the left-hand side of your screen.
2. In the Research Areas and Groups sections, click on "Add Research Areas and Groups", then "Define a new Research Area"

3. A popup window now opens where you can define a research area. Select the “Use competencies” tab.
4. Drag the competencies that you want to combine from the left side to the right side of the screen. When you are done, click Next Step.
5. Name and save the research area.
6. The new research area will now be computed and shown in Overview.

#### 5.3.4 Get an overview of collaboration by your institution

The Overview module also shows the top external collaboration partners of your institution, and how much your institution is collaborating (including international collaboration). Collaboration is measured in terms of co-authored publications.

- The filter options on the left-hand side allow you to explore your institution’s publications in various ways. For example, you can see the top authors and journals, the top collaborating institutions and countries, and the top keywords.
- Go to the Collaboration module for a much more detailed view of external collaboration at your institution.

#### 5.3.5 Evaluate the performance of a group of researchers

SciVal lets you define and evaluate groups of researchers. These can be research teams at your institution, but also larger units such as institutes, departments, and faculties.

You can even define fantasy researcher groups. For example, you can simulate what would happen when you add a top researcher from another institution to an existing research team at your institution.

To define and view a group of researchers:

1. Go to My SciVal and click on “Define a new Researcher” to define the individual researchers that will make up your group.
2. Click on “Define a new Group of Researchers” to define the group.
3. Now go to Overview and select your new group.
4. You can now evaluate the research performance and collaboration of this group.

The “Top Researchers” section on the Summary tab shows the top 5 researchers in that group by number of publications, number of citations or *h*-index. Click on “View list of Researchers” at the top of the Summary tab to see the complete list of researchers that make up the group.

If different units of your institution have been predefined in SciVal as groups of researchers, the Collaboration tab will show you how much internal collaboration is taking place within the group, and how much collaboration with other groups within the same parent group, for example other departments within the same faculty.

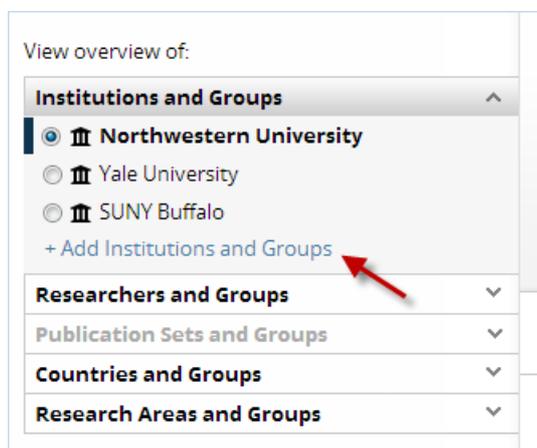
### 5.3.6 Investigate other institutions

In Overview, you are not limited to your own institution, but you can view the research performance of any other institution. You can, for instance, find out:

- In which journals are the world's top institutions publishing the most?
- Would this institution be a suitable collaboration partner for my own institution?
- Who are the other collaboration partners of my institution's collaboration partners?
- Who at this institution would be good to approach for potential collaboration?

Use the entity selection panel on the left-hand side to select the institution you want to view.

1. Open the "Institutions and Groups" section in the entity selection panel
2. If the institution you want is not listed, click on the "Add Institutions and Groups" link and start typing the name, then click on the name when it appears in the search results.



### 5.3.7 See your institution's national or global position

How is your institution positioned? What is your institution's position, nationwide or worldwide, in terms of publication output or impact?

1. Select your country from the entity selection panel on the left-hand side.
2. If the country is not listed, click on the "Add Countries and Groups" link and start typing the name, then click on the name when it appears in the search results.
3. The Institution tab ranks all the institutions in your country by number of publications, citations, or authors. You can see who the top players in your country are, and how your institution ranks among them.

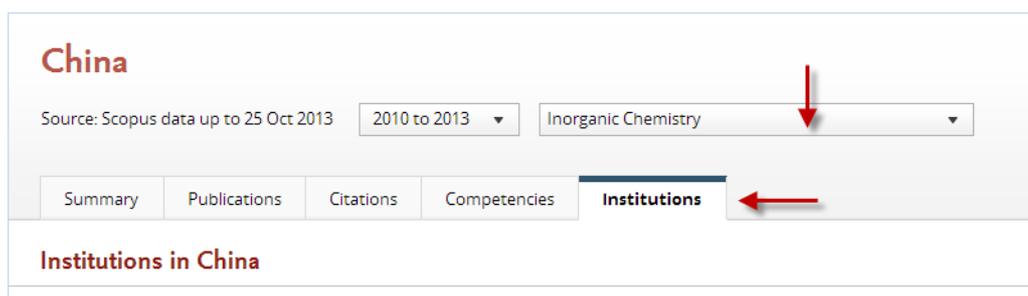
You can also get a picture of what's happening worldwide:

1. Select "World" from the "Countries and groups" sections of the entity selection panel.
2. The Institutions tab ranks all institutions worldwide.
3. You can also see the top journals worldwide (under "Publications by journal").

### 5.3.8 Identify potential collaboration partners

The Institutions tab for a country can also be used to identify potential collaboration partners. Say you are looking for collaboration partners in China within the field of inorganic chemistry:

1. Select China in the entity selection panel
2. Select Inorganic Chemistry from the dropdown menu at the top of the page
3. Go the Institution tab to find out who the key players in that country are.
4. For more details on any of the institutions in this list (such as the top authors at that institution or how much it is collaborating internationally), select it from the entity selection panel.



### 5.3.9 See your institution's performance in a specific research area

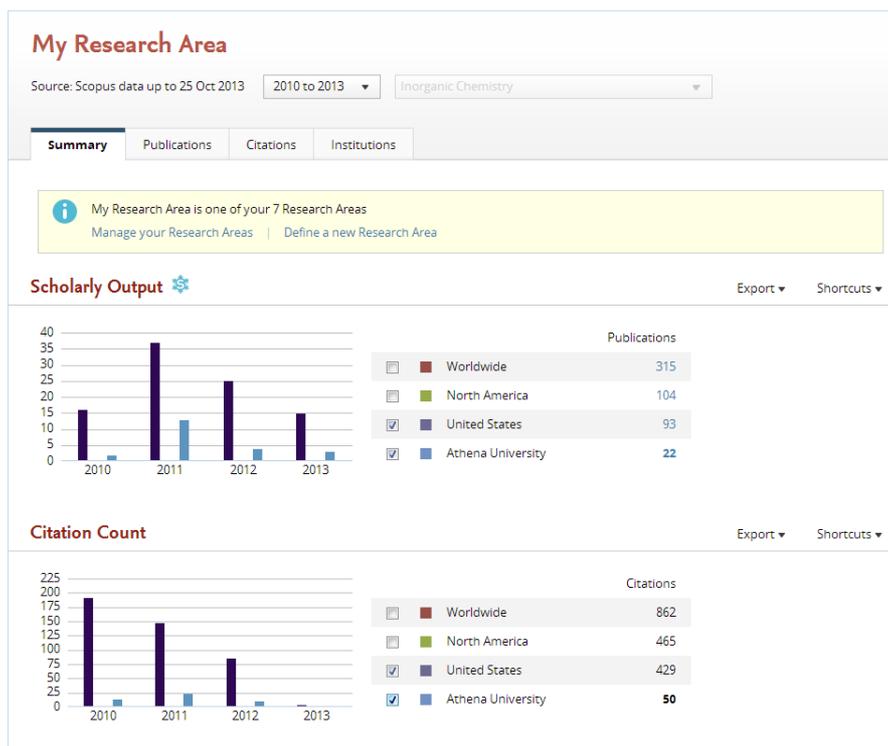
SciVal allows you to define a specific field of research. They can for instance represent a strategic priority of your institution or an emerging area of science. Unlike the fixed, broad categories of the Scopus journal classification, these research areas can be as granular or interdisciplinary as you like.

Once you have defined a research area, you can

- see how your institution is performing in that field
- spot national and international trends
- identify collaboration partners

Say that you are interested in how much research is happening at your institution on neuroinformatics within the field of computer science.

1. Click on "Add Research Areas and Groups", then "Define a new Research Area" in the entity selection panel on the left-hand side of the Overview module.
2. Define your Research Area using the search term "neuroinformatics".
3. Narrow down your definition by limiting it to publications in computer science journals only.
4. Name and save the research area
5. You can now select and view the research area in the Overview module.



You can define a whole series of research areas, for instance a list of strategic goals of your institution, and see how your institution is performing in all of these.

1. Define your research areas.
2. Go to Overview and select your institution from the entity selection panel on the left-hand side.
3. The “Performance by Research Area” section under the Summary tab gives you an overview of your institution’s performance in each of the research areas you have defined.

## 6 The Benchmarking module

### 6.1 What is the Benchmarking module?

The Benchmarking module lets you easily evaluate your research performance in comparison to others. How does your institution compare to others in your region, country or the world?

Choose from a broad range of metrics. You can use 15 different metrics to compare the performance of different types of entities, such as institutions, research teams and individual researchers.

[Which metrics are available to use in SciVal?](#)

### 6.2 Working with the Benchmarking module

#### 6.2.1 Selecting metrics

**Select the metric you want to view.** By default, the metric Scholarly Output (number of publications) is shown. To view a different metric, click on the “y-axis” button along the top of the chart and select it from the list. Then click on the “Choose as y-axis” button.

[Which metrics are available to use in SciVal?](#)

**Choose metric options.** Each metric has different options, but all let you choose the types of publications to include. For instance, you can choose to include only articles and reviews, or only conference papers.

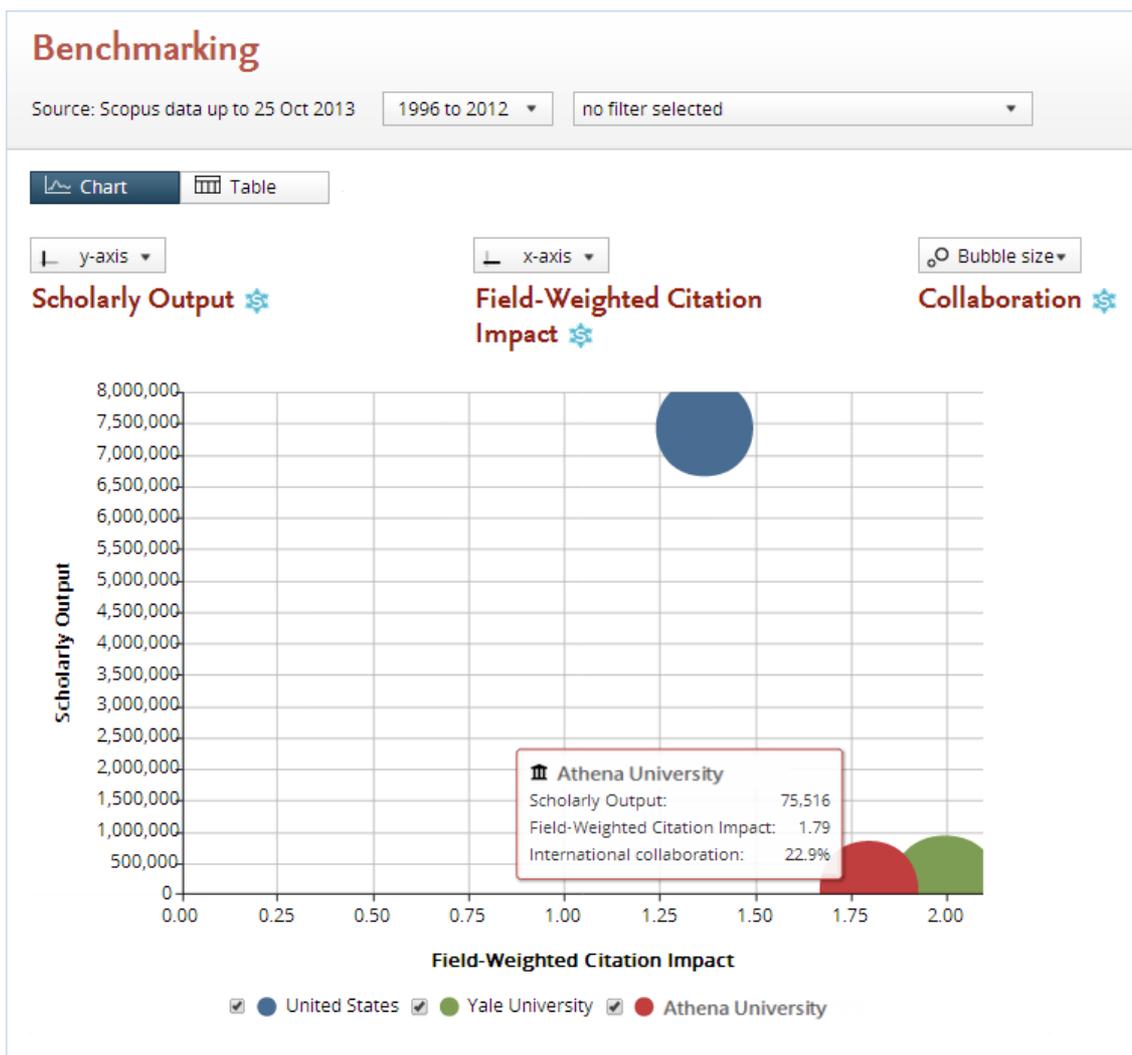
Citation metrics also let you choose whether or not you want to include self-citations.

**Plot metrics against each other.** You can plot two or even three different metrics against each other. Two metrics are shown as a scatter plot. Three metrics are shown as a bubble chart, where the size of the bubbles (circles) on the chart indicates the value of the third metric.

Select a second metric from the “x-axis” button. This will replace “Publication Year” with that metric. If you want, you can select a third metric from the “bubble size” button.

Let’s compare Athena, Yale and the United States on three metrics: Scholarly Output, Field-Weighted Citation Impact and International Collaboration.

1. Select Athena University, Yale and the United States from the entity selection panel on the left-hand side of the screen.
2. Click on the “y-axis” button and select Scholarly Output, if this wasn’t already selected
3. Click on the “x-axis” button and select Field-Weighted Citation Impact.
4. Click on the “Bubble size” button and select Collaboration. In the options for this metric, select “International collaboration”.
5. The chart now shows that Athena’s international collaboration is slightly higher than the U.S., but lower than Yale’s.

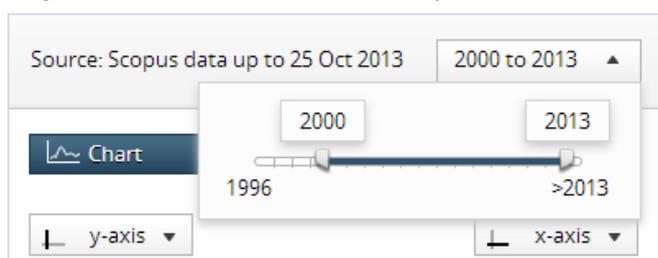


You don't have to select two *different* metrics necessarily. Instead, you can also select the *same* metric for both "x-axis" and "y-axis", but with different options. For instance, you could compare outputs in the top 1% percentile to outputs in the top 10% percentile, or you could compare international collaboration to national collaboration.

### 6.2.2 Selecting a year range

You can view publication data from 1996 until the present. Use the time period selector at the top of the page to select the start and end year.

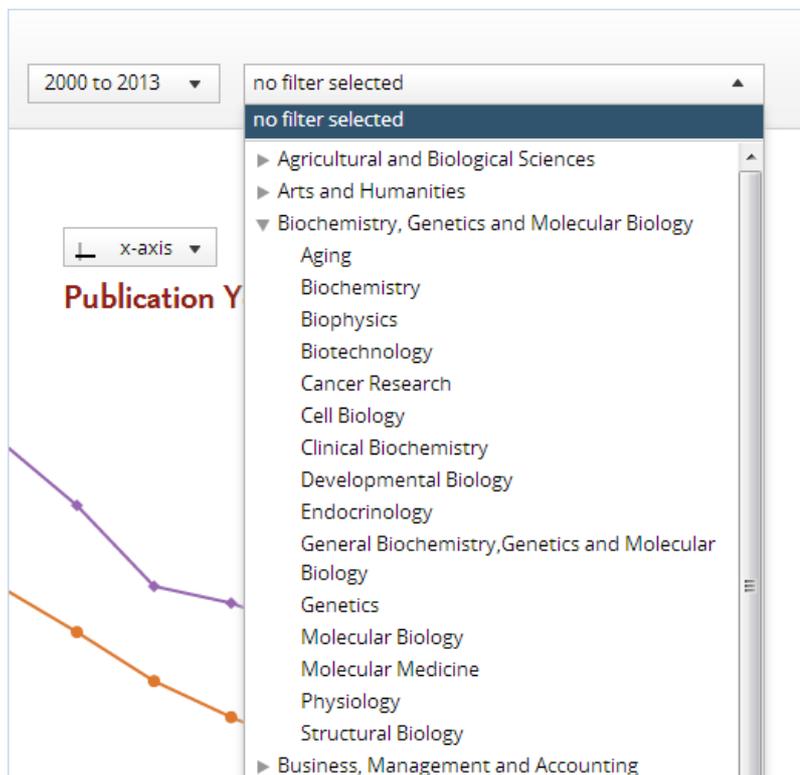
You may want to exclude the current year because, by the end of the current year, Scopus has only received and indexed a certain portion of the current year's journals from other publishers.



### 6.2.3 Filtering by journal category

Interested in evaluating or comparing your performance within a specific discipline? Choose from 27 categories and 334 subcategories in the Scopus journal classification.

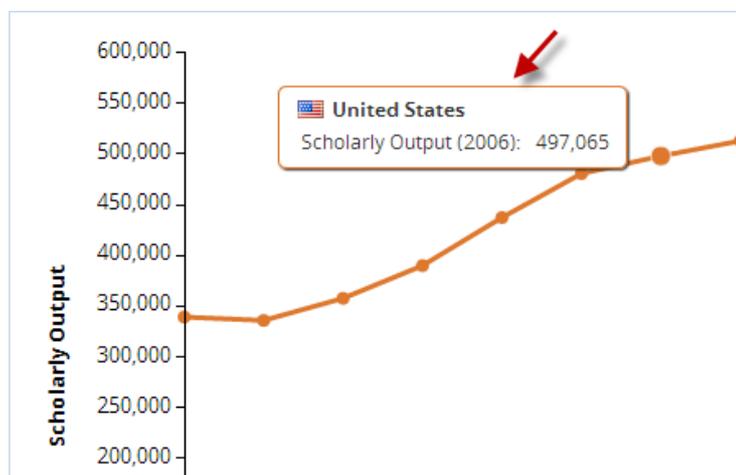
1. Use the filter dropdown at the top of the page to select a specific journal category.
2. The subcategories appear when you click on the arrow in a category.



### 6.2.4 Working with the chart

**Chart legend.** Each entity plotted on the chart has a different color and symbol. This is shown in the legend shown next to the chart. You can hide a particular entity from the chart by clicking on the checkbox next to that item in the legend.

**Data pop-ups.** Hover over a data point on the chart and a small pop-up will appear with the metrics you have selected and their values for that year.



**Export the chart.** You can export the chart to an image file by selecting “Export the chart” from the Export menu in the top right corner. This will export the chart in several different file formats at once (JPEG, PNG, SVG and PDF). You can also export the underlying data by choosing “Export the data to a spreadsheet file”.

### 6.2.5 Working with the table

When viewing a metric by year, you can scroll the table horizontally to see the values for all years in the selected year range.

**View the underlying publications.** When numbers of publications are shown in the table, you can click on any number to view the actual list of publications. Numbers of publications are shown for Scholarly Output or Cited Publications, for example.

**Export the data.** To export the data in the table to a spreadsheet file, choose “Export the data to a spreadsheet file” from the Export menu in the top right corner. You can then view and manipulate the data in an external spreadsheet application such as Microsoft Excel.



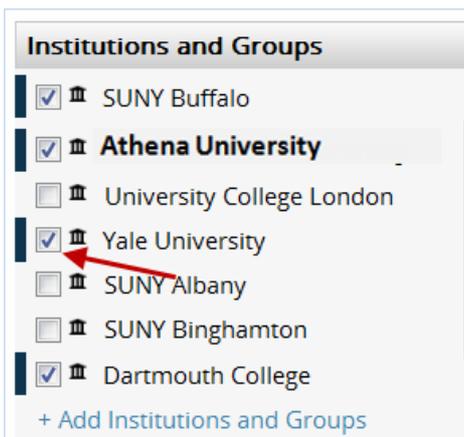
## 6.3 How can you use the Benchmarking module?

### 6.3.1 Compare your institution to others

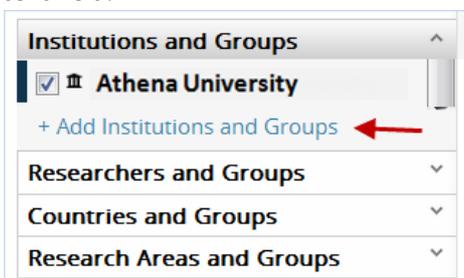
How does your institution compare to peer institutions?

Let's say that your institution, Athena University, wants to compare its research performance with SUNY Buffalo, Yale and Dartmouth.

1. Start by setting up the list of institutions, using the entity selection panel on the left side of your screen. Make sure your institution and the peer institutions are all selected (checked off) in the entity selection panel.



2. If an institution is not listed, click “Add Institutions and Groups” and start typing the name of that institution. Then select the institution from the list of search results that appears below the text field.



3. By default, you will view Scholarly Output by publication year. This shows you the total research output of your selected institutions over a period of time.
4. Use the buttons along the top of the chart to select different metrics. Use the “y-axis” button to change from Scholarly Output to another metric. To compare two different metrics, select a second metric from the “x-axis” button.



### 6.3.2 Benchmark your institution against the national average

Do you want to compare your institution’s research performance to the national average?

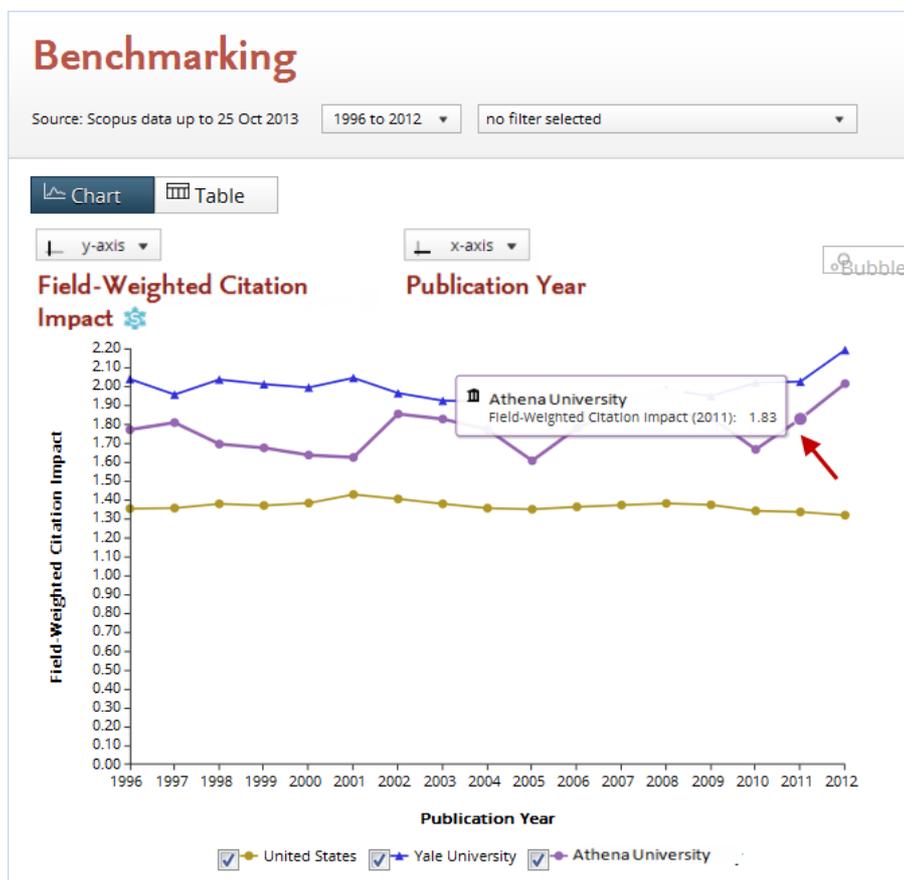
Field-Weighted Citation Impact is a good metric to use, since it adjusts for differences in citing behavior across disciplines. A score of 1.00 means citations are as expected based on the global average. More than 1.00 means that citations are more than expected. Less than 1.00 means the citations are less than expected.

1. Select Field-Weighted Citation Impact from the “y-axis” button.
2. Make sure your institution and your country are selected in the entity selection panel on the left side.
3. If your country is not listed in the entity selection panel, click “Add Countries and Groups” and start typing the name of that country. Then select the country from the list of search results that appears below the text field.

Let’s say that you want to compare your institution, Athena University, to the national average.

The Field-Weighted Citation Impact for Athena was 1.83 in 2011. This means citations were 83% higher than expected based on the global average. When plotted against the United States and Yale, we can see that Athena's Field-Weighted Citation Impact is higher than the US national average, but it is slightly lower than Yale.

Other metrics that can be used to compare your institution to the national average include Outputs in Top Percentiles (by percentage), and Publications in Top Journal Percentiles (by percentage), and Collaboration (by percentage).



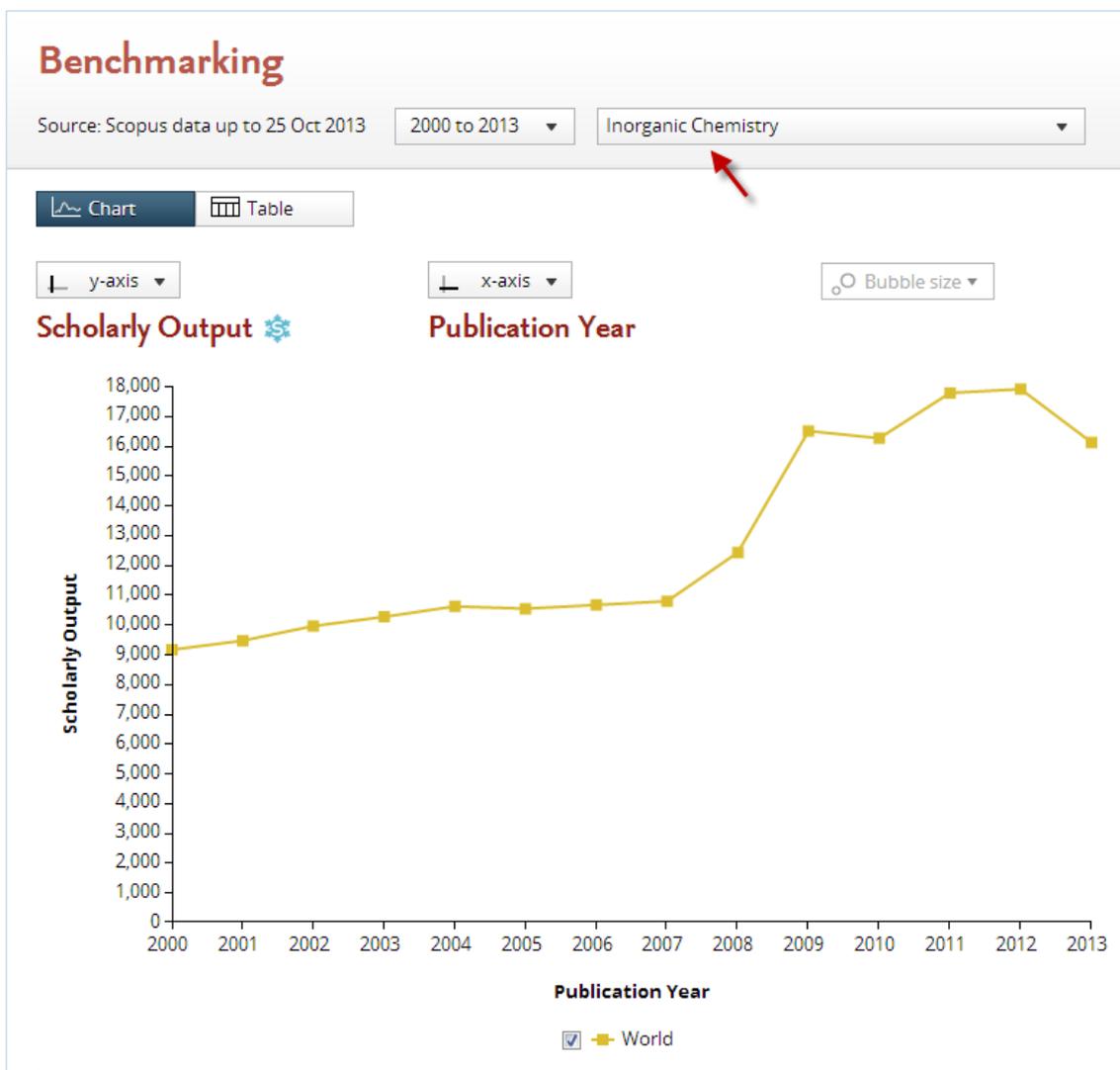
### 6.3.3 Spot research trends

You can view metrics for a specific field of research over time. This lets you spot potential trends in that field, such as whether the field is emerging, declining or levelling off.

You can use either journal categories or self-defined research areas. Journal categories are categories in the Scopus journal classification. They represent broad areas of science, such as chemistry or engineering. Self-defined research areas can be more granular or interdisciplinary.

To use a journal category:

1. Choose the journal category from the filter selector at the top of page.
2. Select the World from the entity selection panel.
3. In addition to the World, you can also select your country or your institution. This lets you compare your national or institutional performance to the international trend.
4. Select Scholarly Output from the "y-axis" button and "Publication Year" from the "x-axis" button. You can now see the year-by-year publications trend in this journal category.



5. Try some other metrics, like Field-Weighted Citation Impact, Collaboration or Outputs in Top Percentiles.

SciVal also allows you to define your own research areas and view these in the Benchmarking module.

1. Use the entity selection panel on the left-hand side to select a previously defined research area.
2. You can also define a new research area. In the entity selection panel, click on "Add Research Areas and Groups", then "Define a new Research Area".
3. Select the research area in Benchmarking to see the worldwide output in that field.
4. You can select multiple research areas to compare the output in one research area to the output in another area.

#### 6.3.4 Identify suitable benchmark institutions

If you have access to the Overview module, you can make use of it to identify suitable benchmark institutions for your institution. These are institutions that you can use to compare your own

institution against, in order to evaluate how well your institution has performed.

Say you are looking for benchmark institutions for Athena University within the United States in the field of chemistry.

1. In the Overview module, select the United States and filter by chemistry.
2. Go to the Institutions tab. This will now list the top U.S. institutions by number of publications in chemistry journals.

The screenshot shows the 'United States' page in the SciVal interface. At the top, it indicates the source is Scopus data up to 25 Oct 2013, with filters for '2010 to 2013' and 'Chemistry'. The 'Institutions' tab is selected, displaying a table of the top 10 institutions in the United States based on the number of publications. Athena University is the top institution with 3,179 publications, 30,723 citations, and 3,399 authors. Other institutions include MIT, UC Berkeley, Harvard, UT Austin, Stanford, Texas A and M, Georgia Tech, Michigan, and Lawrence Berkeley National Laboratory.

Institution	Publications	Citations	Authors
1. <b>Athena University</b>	3,179 ▲	30,723	3,399 ▲
2. Massachusetts Institute of Technology	2,751 ▲	29,481	2,882 ▲
3. University of California at Berkeley	2,380 ▲	31,824	2,549 ▲
4. Harvard University	2,287 ▲	22,439	3,137 ▲
5. University of Texas at Austin	2,181 ▲	21,342	2,059 ▲
6. Stanford University	2,168 ▲	27,245	2,367 ▲
7. Texas A and M University	2,053 ▲	15,333	1,877 ▲
8. Georgia Institute of Technology	2,052 ▼	19,484	2,075 ▲
9. University of Michigan	1,977 ▲	18,353	2,408 ▲
10. Lawrence Berkeley National Laboratory	1,914 ▲	21,280	1,816 ▲

3. You can now select one or more institutions from this list that you would like to match or exceed in terms of research performance.

### 6.3.5 Compare your institution against collaborating institutions

You can use the Overview or Collaboration modules to find the top collaborating institutions of your institution. You can then compare these institutions in the Benchmarking module.

1. Go to the Overview module and select your institution.
2. Find the Top collaborating institution section on the Summary tab.
3. Choose "Benchmark these institutions" from the Shortcuts menu.

**Top collaborating Institutions** Export ▾ Shortcuts ▲

by number of publications co-authored with Northwestern University

→ View Institutions collaborating with Northwestern University in more detail

→ Benchmark these Institutions

Institution	Co-authored publications	co-authored publications	Co-authors
1. 🇺🇸 Harvard University	1,286 ▲	18,266	1,782 ▲
2. 🇺🇸 Johns Hopkins University	1,038 ▲	19,210	1,072 ▲
3. 🇺🇸 University of California at Los Angeles	980 ▲	17,393	1,012 ▲
4. 🇺🇸 University of Chicago	977 ▲	12,218	1,203 ▲
5. 🇺🇸 University of Illinois at Chicago	977 ▲	10,478	990 ▲
6. 🇺🇸 University of Michigan	857 ▲	11,772	831 ▲
7. 🇺🇸 Argonne National Laboratory	788 ▲	9,694	611 ▼
8. 🇺🇸 University of Wisconsin	745 ▲	12,082	759 ▲
9. 🇺🇸 University of Washington	744 ▲	11,727	790 ▲
10. 🇺🇸 The Ohio State University	710 ▲	12,190	599 ▲

4. You will now jump to the Benchmarking module and your institution, plus the top collaborating institutions will be selected there.
5. Note that the selected year range in Overview will also be selected in Benchmarking.

## 7 The Collaboration module

### 7.1 What is the Collaboration module?

The Collaboration module is where you can evaluate the existing research collaborations of your institution. Start with a worldwide view of your collaboration landscape. Then zoom in to individual collaborating institutions and researchers anywhere in the world.

You can also use this module to identify new opportunities for collaboration in your own country or worldwide. See which institutions and researchers your institution isn't yet collaborating with.

All data can be filtered by a specific subject area. Say you are only interested in collaboration within the field of chemistry. Then you can view only institutions and researchers that have co-authored chemistry publications with your institution.

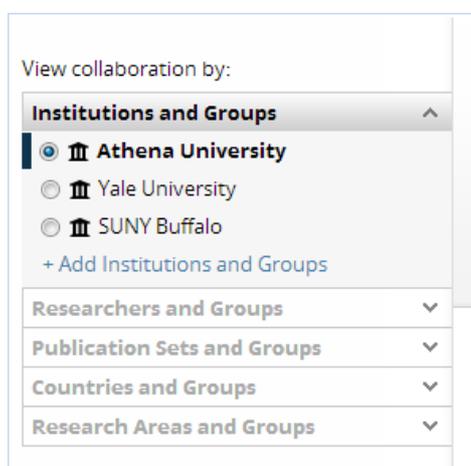
The data can be exported, and you can review the underlying list of publications behind every publication count.

### 7.2 Working with the Collaboration module

#### 7.2.1 Selecting an institution

Use the entity selection panel on the left-hand side to select the institution you want to view.

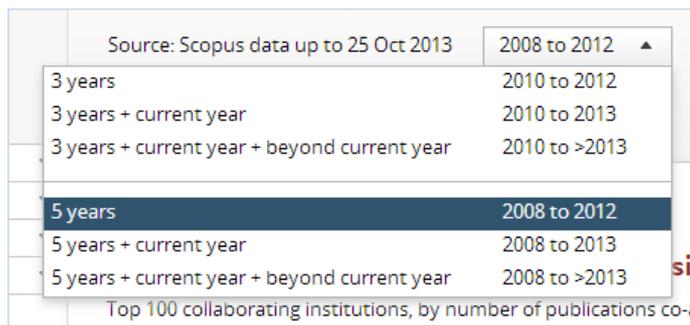
If the institution you want is not listed, click on the "Add" link and start typing the name, then click on the name when it appears in the search results.



#### 7.2.2 Selecting a year range

You can view publication data for a period of either three or five years. Use the year range selector at the top of the page to select the desired year range.

Optionally, you can also include the current year and future years. However, you may want to exclude this because, by the end of the current year, Scopus has only received and indexed a certain portion of the current year's journals from other publishers.



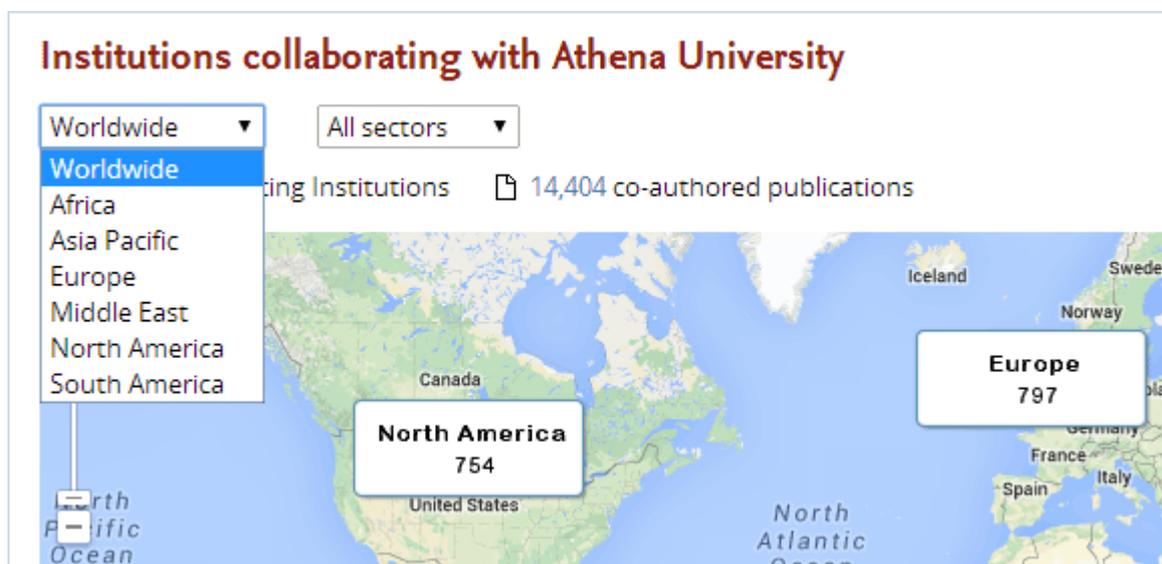
### 7.2.3 Selecting a region, country or sector

You can limit the list of institutions shown to a specific world region or country. This will apply to both the "Current collaboration" and "Potential collaboration" views, and to both the Map and Table views.

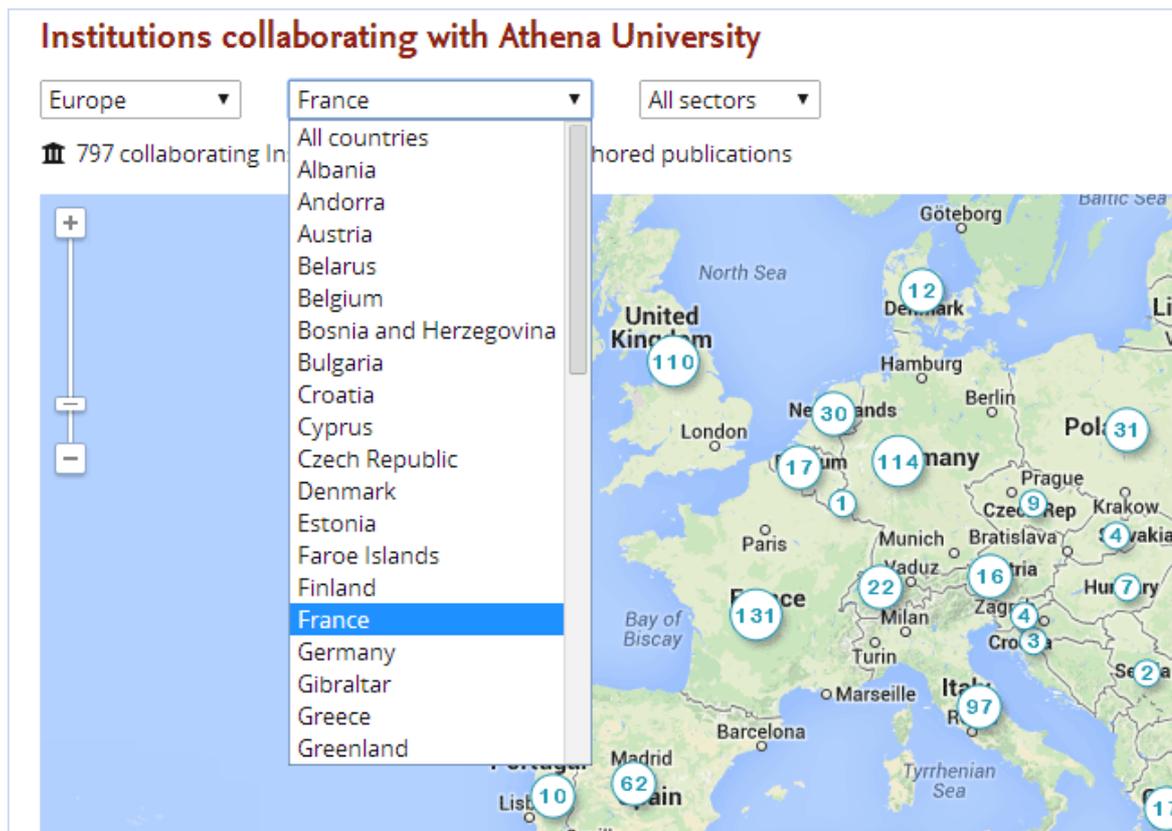
In addition, you can filter the list of institutions by sector. For instance, you can choose to view only institutions in the corporate sector, or only institutions in the medical sector.

You can also combine the geographical and sector selections. For example, you could choose to view only corporations in France, or only medical institutions in North America.

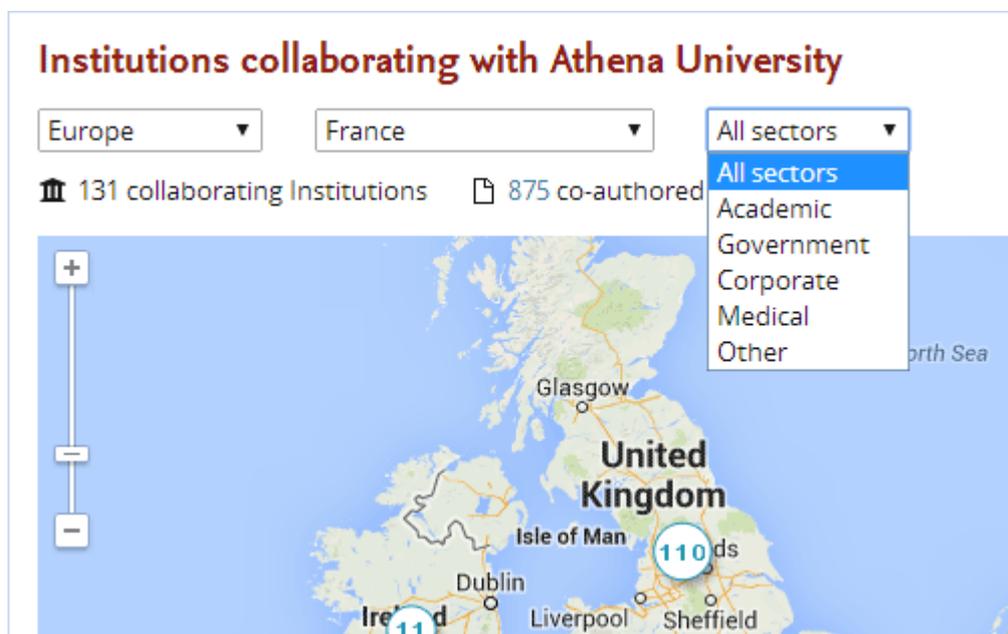
**Select a region.** From the drop-down menu marked "Worldwide", select the region you would like to view, for instance North America, Asia Pacific or Europe. In Map view, you can also click on one of region markers that are shown on the map when you are zoomed out to worldwide view.



**Select a country.** Start by selecting the region of the country you want from the leftmost drop-down menu, A second drop-down menu now appears that lets you pick the country. For example, to select the United States, select "North America" from the first menu, then select "United States" from the second menu. In Map view, you can also click on one of blue-on-white country markers that are shown on the map after you have zoomed in to a particular region. To return to region level, select "All countries" from the country menu.



Select a sector. Use the rightmost drop-down menu to select a specific sector, such as corporate or medical.



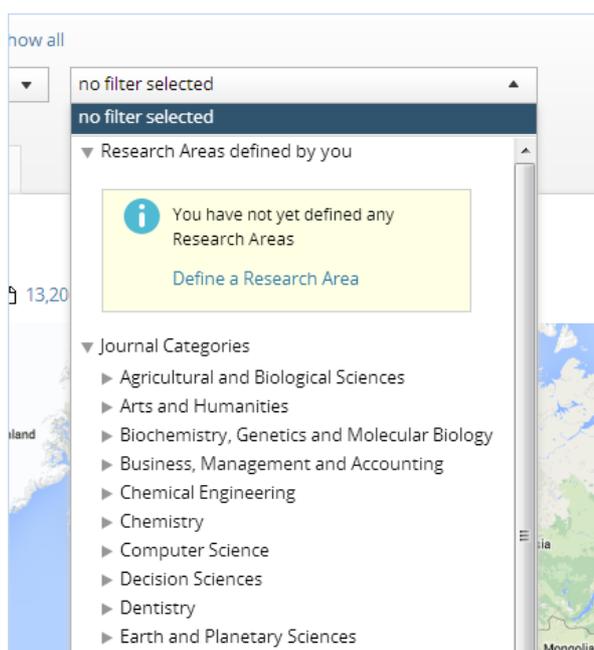
### 7.2.4 Filtering by journal category or research area

Interested in evaluating or comparing your performance within a specific discipline? You can choose from 27 categories and 334 subcategories in the Scopus journal classification.

1. Use the filter dropdown menu at the top of the page to select a specific journal category.
2. The subcategories appear when you click on the arrow in a category.

**Filter by research area.** You can also filter by research areas that you have defined yourself. These can be as granular or interdisciplinary as you like.

1. Select your institution from the entity selection panel on the left-hand side.
2. Use the filter dropdown menu at the top of the page to select a specific research area.
3. If you have not yet defined the research area, click on “Define a Research Area” in the filter menu.

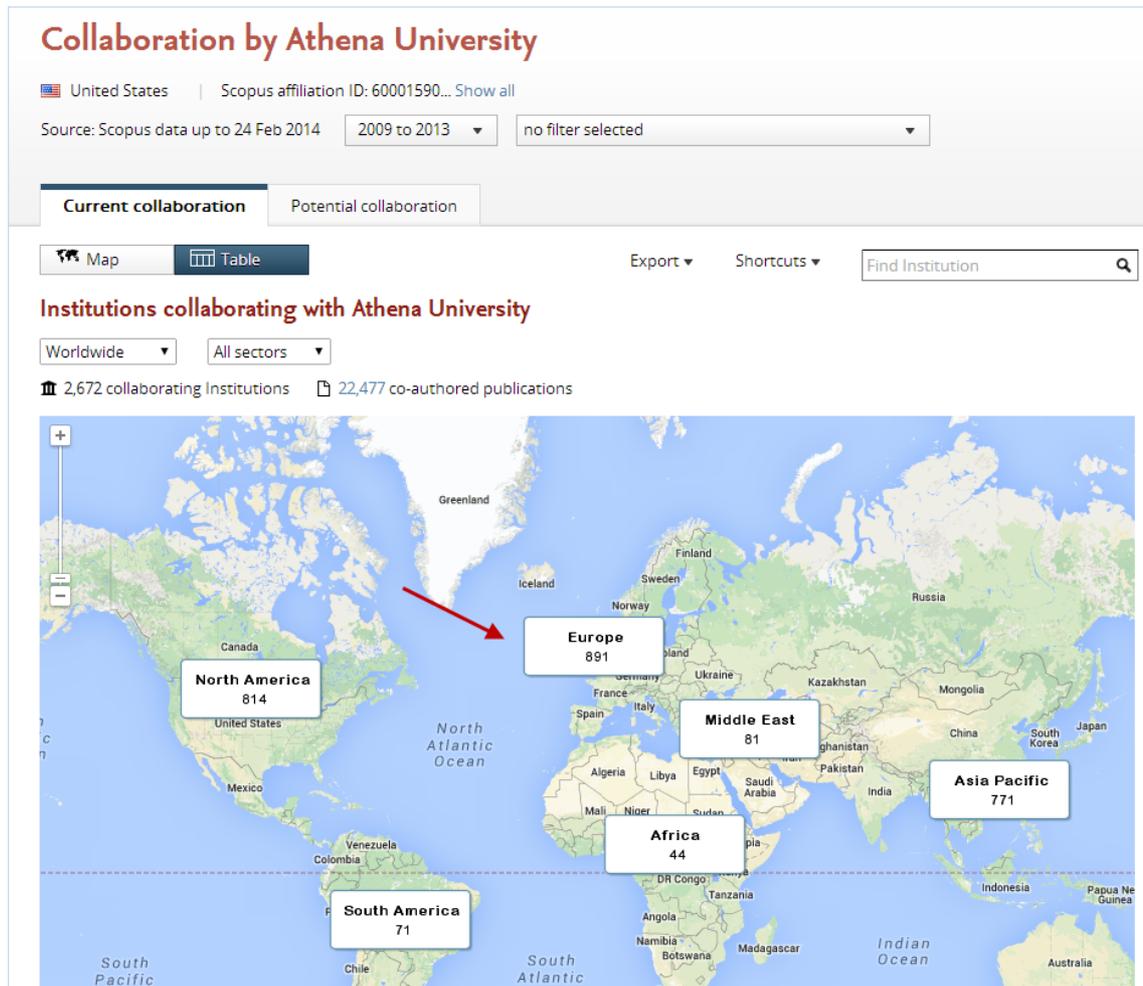


### 7.2.5 Working with the map

**Zooming in and out.** You can use the zoom control in the top left corner of the map to zoom in and out. You can also double-click on the map to zoom in further.

**Zoom in on a region.** At world level, the map gives you an overview of your global collaboration landscape.

- There are markers on the map for each of the world regions (Asia Pacific, North America, South America, Europe, Middle East, and Africa). These markers show you how many collaborating institutions there are in each region.
- Click on one of the region markers at world level to zoom in to that region.



**Zoom in on a country.** After zooming in on a region, you see a number of round markers for each of the countries in that region.

- These country markers display the number of collaborating institutions in each country.
- Click on a country marker to zoom into that country.

**Zoom in on an institution.** You can now click on any of the institutions. A pop-up window opens with full details on the collaboration with that institution.

### 7.2.6 Working with the table

Instead of the map view, you also see your institution's (potential) collaborating institutions in a tabular list view.

In "Current collaboration" this table view shows the top 100 collaboration institutions, by number of publications. You can use the dropdown menus at the top to view the top collaborating institutions in a specific region or country.

- You can change the sort order of the table by clicking on any of the column headings.
- You can use the dropdown menu to switch from citations to a different metric for citation impact.

**Collaboration by Athena University**

United States | Scopus affiliation ID: 60001590... Show all

Source: Scopus data up to 24 Feb 2014 | 2009 to 2013 | no filter selected

Current collaboration | Potential collaboration

Map | Table | Export | Shortcuts | Find Institution

**Institutions collaborating with Athena University**

Europe | France | All sectors

152 collaborating Institutions | 1,367 co-authored publications

Institution	Co-authored publications	Co-authors at Northwestern University	Co-authors at the other institution	Citations
Universite Paris 6	470	261	322	10,668
Universite de Strasbourg	469	230	167	10,057
CEA Saclay	466	189	250	12,571
IN2P3 Institut National de Physique Nucleaire et de Physique des Particules	301	167	133	7,330
Ecole Polytechnique	265	136	147	5,857
Universite Paris-Sud	245	102	112	8,340
Universite d'Aix-Marseille	222	82	129	4,407
Universite Claude Bernard Lyon 1	211	86	80	4,004
Universite Joseph Fourier	190	45	32	3,253

- Click on the name of an institution for full details of the collaboration with that institution
- Click on the number of co-authored publications to view the list of publications

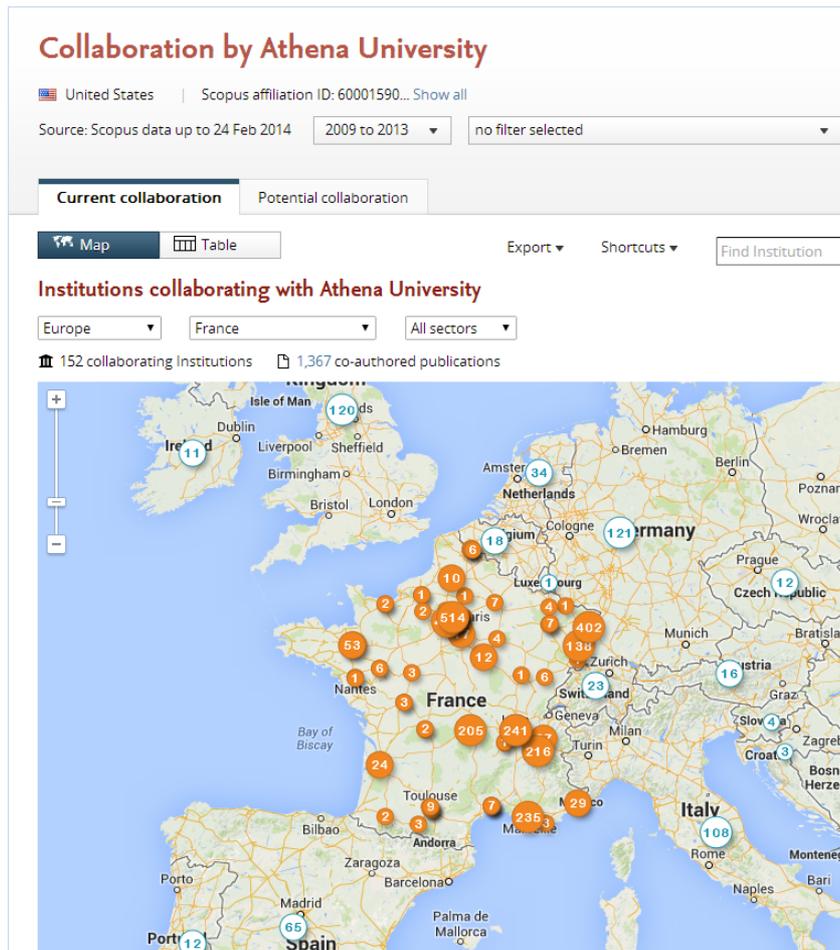
Use the Export menu to export the full list of collaborating institutions to a spreadsheet file.

## 7.3 How can you use the Collaboration module?

### 7.3.1 Identify the collaboration partners of your institution

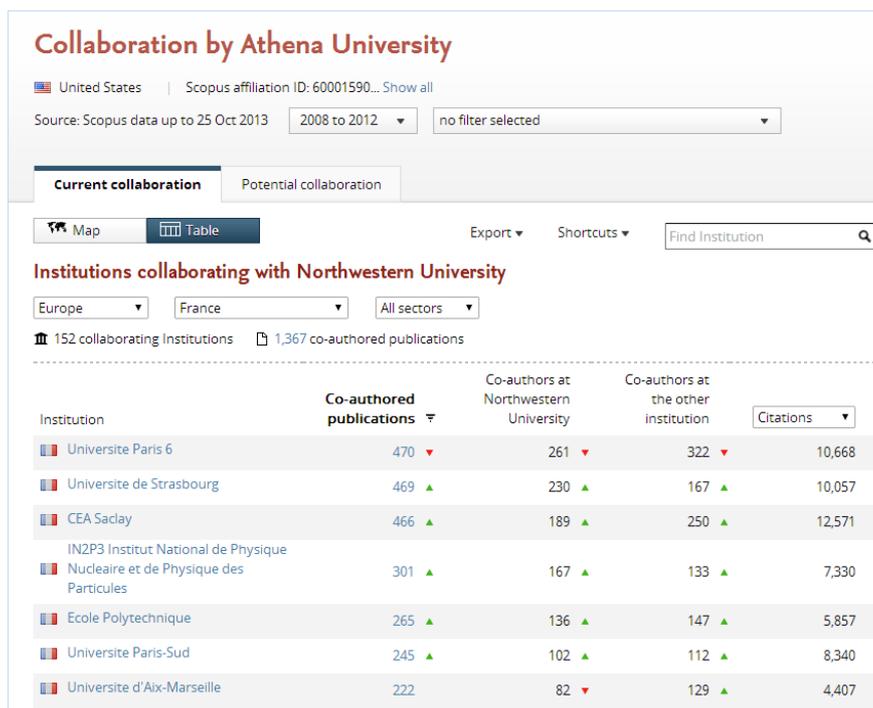
**Get an overview of your collaboration landscape.** The map view in Current collaboration gives you a global overview of the collaboration partners of your institution. You can then zoom in to a specific country. For example, to see your collaboration partners in France:

1. Select your institution from the entity selection panel on the left-hand side.
2. Go to “Current collaboration” and select the Map view
3. Click on the Europe marker to zoom in and see all the European countries where collaboration with your institution has taken place.
4. Click on the round marker shown in France to zoom in and see all collaborating institutions and researchers in France. Click on one of these institutions to explore the collaborating with that institution in more detail.



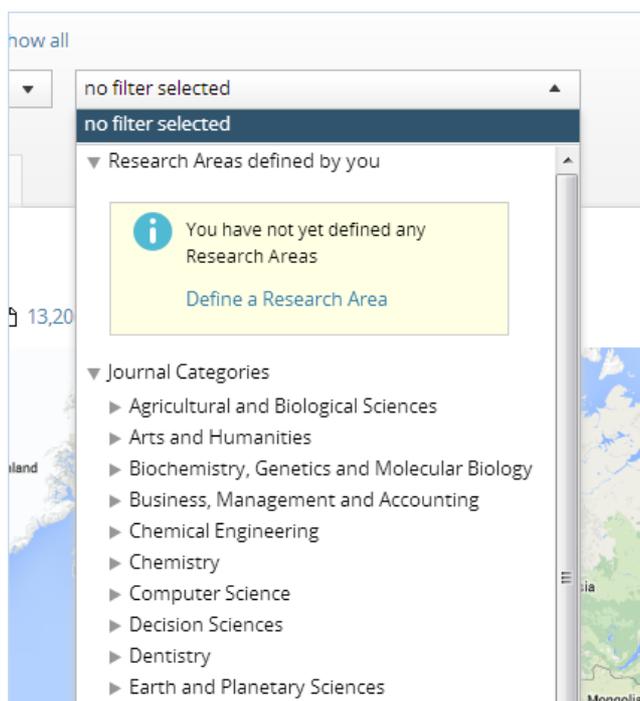
5. Switch from map to table view to see the collaborating institutions in France in a tabular list view.
6. Go to the Export menu to export the full list of collaborating institutions to a spreadsheet file.
7. To view collaboration in France within a particular sector (such as corporate or medical), select the sector from the rightmost of the drop-down menus along the top of the map.

**Measure the impact of your collaborations.** The table view lets you compare institutions by the number of publications co-authored with each. You can also evaluate the impact of your collaborations using metrics such as number of citations or Field-Weighted Citation Impact.



**View your collaborations within a specific field of research.** Do you want to see the collaborations of your institution within a specific field of research? Then select a filter from the dropdown menu at the top of the page. For example, to see collaboration within chemistry only, choose Chemistry from the menu.

- You can choose from 27 categories and 334 subcategories in the Scopus journal classification
- You can also define your own research areas, which can be as granular or interdisciplinary as you like.



### 7.3.2 Evaluate a collaboration partner in detail

Click on any institution in either map or table view. You can now zoom into that institution and look at your collaboration with that institution in much greater detail.

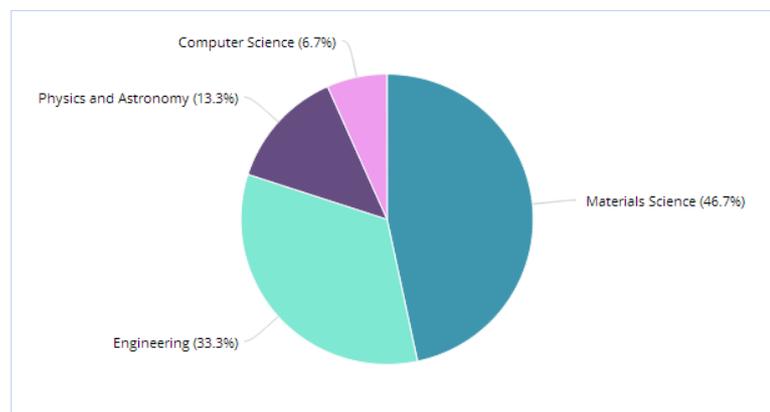
If you've filtered the data by a journal category or research area, you will see only the collaboration with that institution in the field of research you've selected.

**Compare the co-authored publications to the overall output of the institutions.** At the top of the pop-up window, you can compare the co-authored publications to the total output at each institution.

- Which is the most active and most cited of the two institutions?
- Do the co-authored publications have more citation impact than the individual institutions' overall publication output?



**View the list of co-authored publications.** The pie chart in the pop-up window gives you a breakdown of the co-authored publications by journal category. In which disciplines did most of the collaboration occur?



You can also view this as a bar chart, which lets you compare the co-authored publications by journal category to the total output of each institution by journal category.

Click "View list of publications" for the full list of co-authored publications.

- The filter options will show you a breakdown of the publications – by author, institution, publication year, or keyword, for instance.
- Use the filter options to slice and dice the list in various ways.

**Explore the list of co-authors.** Go to the "Current co-authors" tab to drill down to the full list of co-authors, both at your institution and at the collaborating institution. This lets you see which researchers have co-authoring publications, and which of those collaborations had the most citation impact.

- Click on a researcher's name for more details on that researcher's publication career.
- Click on the arrow next to each name to see their co-authors at the other institution.

**Collaboration with Universite Paris 6**  
Year range: 2009 to 2013

Overview | **Current co-authors** | Potential co-authors

**Athena University**  
Co-authors with Universite Paris 6

Author	Co-authored publications	Citations
▶ Schellman, H.	171	3,038
▶ Anastassov, A.	136	2,189
▶ Stentz, D.	135	2,186
▶ Schmitt, M.	133	2,150
▶ Yacoob, S.	117	2,467
▶ Kirby, M.	111	2,396
▶ Welty-Rieger, L.	105	1,417
▶ Buchholz, D.	77	1,718
▶ Anzelc, M.S.	45	863
▶ Andeen, T.	41	723
▶ Strom, D.	37	681
▶ Youn, S.W.	37	681
▶ Sun, W.	33	245
▶ Lannon, K.	18	248

**Universite Paris 6**  
Co-authors with Athena University

Author	Co-authored publications	Citations
▶ Bernardi, G.	179	5,813
▼ Lellouch, J.	176	3,051

26 co-authors at Athena University (top 10 shown)

1. Schellman, H.	168	3,028
2. Yacoob, S.	115	2,460
3. Kirby, M.	110	2,390
4. Welty-Rieger, L.	105	1,417
5. Buchholz, D.	74	1,689
6. Anzelc, M.S.	42	834
7. Andeen, T.	38	694
8. Strom, D.	35	674
9. Youn, S.W.	35	674
10. Schellman, H.	5	0

▶ Enari, Y.	135	2,220
▶ Savoy-Navarro, A.	134	2,173

- Use the Export menu to export the complete list of co-authors to a spreadsheet file.

**Identify potential new co-authors.** Go to the "Potential co-authors" tab to see which researchers at each institution are *not* yet collaborating with the other institution. Here, you can identify potential matches between researchers at your institution and researchers at the other institution.

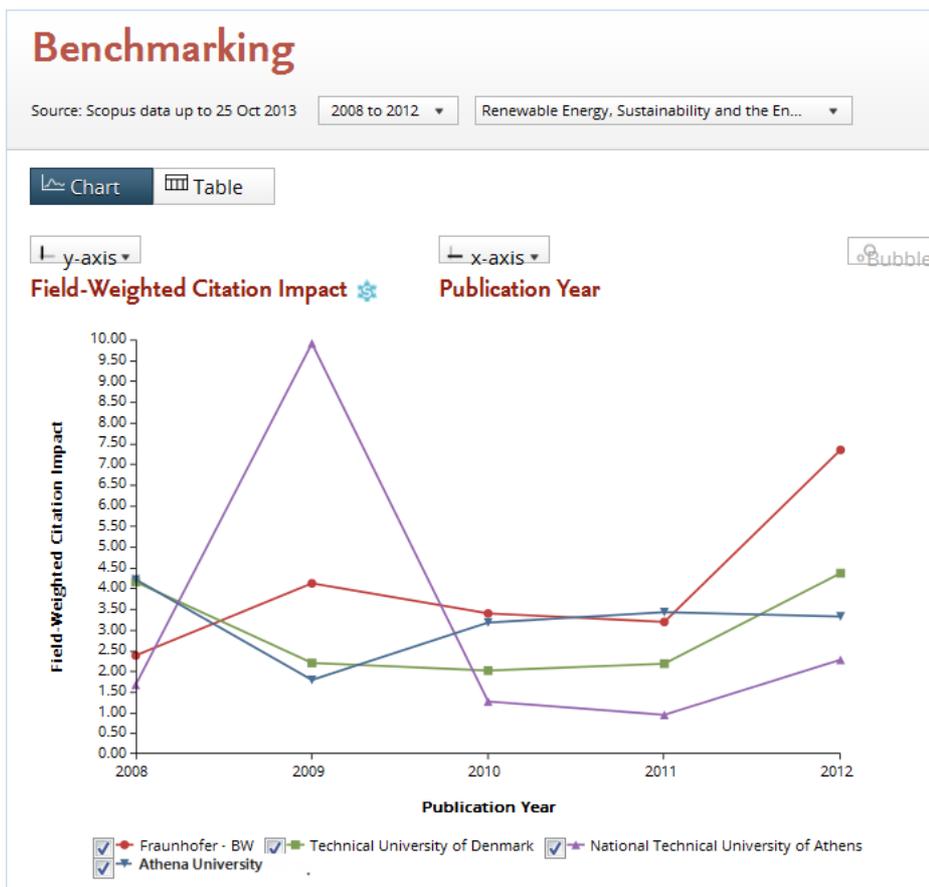
- The "Potential co-authors" tab lists the top 100 authors at each institution, by number of publications, who are not yet collaborating with the other institution.
- The list is available both for your institution's current collaboration partners (institutions where at least one researcher is collaborating institution), and for institutions where no one is

collaborating with your institution yet.

- This view is particularly useful when filtering by a specific research area or journal category

**Other ways to evaluate a collaboration partner.** Use the Shortcuts menu in the institution details pop-up to examine a collaboration partner in even more detail. You can:

- get a high-level overview of the institution in the Overview module
- view and compare metrics for that institution in Benchmarking



- see the collaboration partners of that institution in the Collaboration module

### 7-3-3 Identify potential new collaboration partners of your institution

Switch to the “Potential collaboration” tab to see institutions that haven’t yet co-authored any publications with your institution. This allows you to identify potential new opportunities for collaboration.

This view is similar in many ways to the “Current collaboration” view:

- You can see these institutions in either map or table view, and zoom in from the world to a particular region or country.
- You can also use the Export menu to export the list of institutions to a spreadsheet file.

Potential collaboration partners are arranged by their total publication output. In table view, you also see their citation impact.

**View potential collaboration partners within a specific field of research.** The “Potential collaboration” view is most useful when you filter the data by a particular field of research.

Say you are only interested in collaboration within the field of chemistry. Then you can view only institutions that have are active within chemistry, but have not yet co-authored any chemistry publications with your institution.

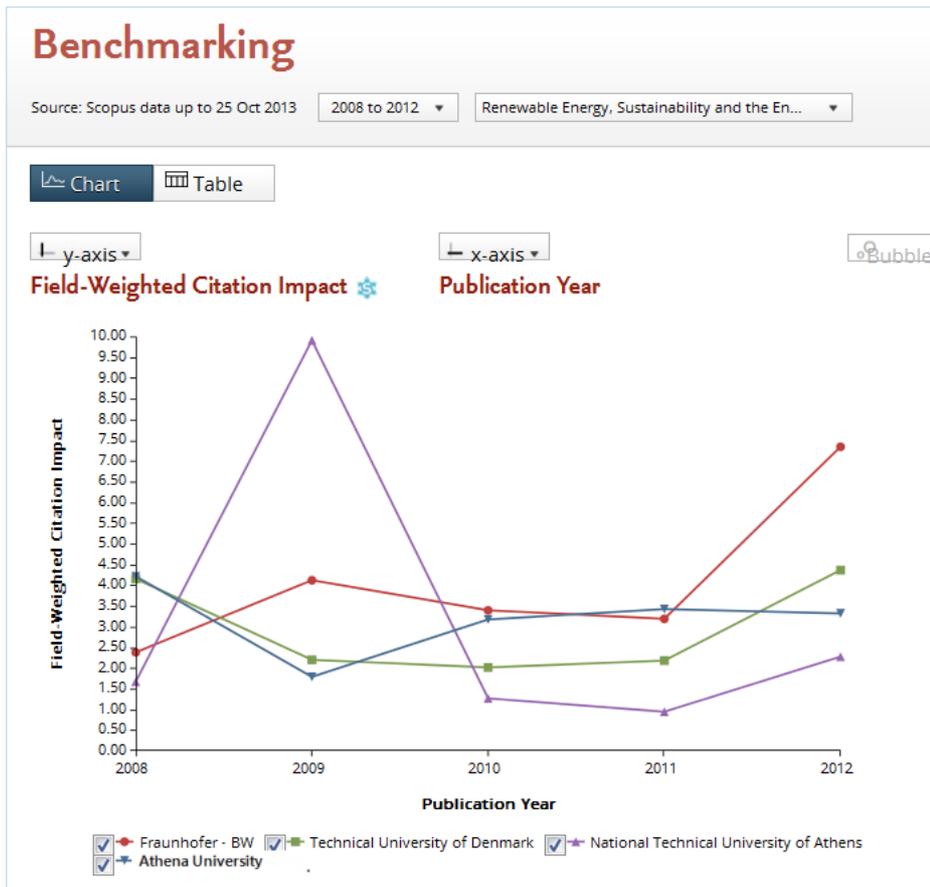
- You can choose from 27 categories and 334 subcategories in the Scopus journal classification.
- You can also define your own research areas, which can be as granular or interdisciplinary as you like.

**Evaluate a potential collaboration partner.** Click on any institution in either map or table view. You can now zoom into that institution and evaluate that institution as a potential new collaboration partner in much greater detail.

- At the top of the pop-up window, you can compare the total output at each institution.
- The pie chart and bar chart below that let you compare the total output of each institution by journal category. Where do the institutions overlap and where is their research unique?
- Go to the "Potential co-authors" tab to see the top researchers at each institution. Here, you can identify potential matches between researchers at your institution and researchers at the other institution.

Use the Shortcuts menu in the institution details pop-up to examine a potential collaboration partner in even more detail. You can:

- get a high-level overview of the institution in the Overview module
- view and compare metrics for that institution in Benchmarking



- see the collaboration partners of that institution in the Collaboration module

## 8 Defining your own research areas

### 8.1 About research areas in SciVal

SciVal gives you the flexibility to model, evaluate and benchmark any field of research. This can be a strategic priority, an emerging area of science or any other topic of interest.

Once you have defined a research area, you can:

- evaluate your institution's output in that field
- see which other institutions and researchers are active in this field
- compare the output of your institution in that field against other institutions,
- identify existing and potential new collaboration partners

User-defined research areas offer an alternative to subject area classifications like the Scopus journal classification. They can be as granular or interdisciplinary as you like.

Research areas are not fixed, but represent a dynamic definition of a field of science. Whenever the publication data in Scopus is updated, new publications matching the definition are added to the research area.

### 8.2 Defining a research area

The definition of a research area can either be keywords or entities. If this definition is too broad, you can apply filters to narrow it down further.

Let's say that your institution has made research on graphene a strategic focus. You are specifically interested in research on the thermal conductivity of graphene, and want to see how well your institution performs in this area.

1. Go to the Overview module.
2. Open the "Research Areas and Groups" section of the entity selection panel on the left-hand side of the screen.
3. Click on "Add Research Areas and Groups", then "Define a new Research Area".

The screenshot displays the SciVal interface for Athena University. On the left, a navigation panel titled 'View overview of:' lists several categories: 'Institutions and Groups', 'Researchers and Groups', 'Publication Sets and Groups', 'Countries and Groups', and 'Research Areas and Groups'. The 'Research Areas and Groups' section is expanded, showing a '+ Define a new Research Area' button with a red arrow pointing to it. The main content area shows the 'Overall research performance' for Athena University, with a 'Summary' tab selected. The performance metrics are: Publications: 40,315 (up arrow), Authors: 22,665 (up arrow), Citations: 428,487, and Citations per Publication: 10.6. Below this, there is a section for 'Performance by Research Area' with a lightbulb icon and the text: 'You can define custom Research Areas that are relevant to Athena University.' and a 'Define a Research Area' link.

A pop-up window will now open. Here you can define your research area using a 3-step process.

**Step 1.** Start by defining your research area:

1. Go to the tab "Use search terms"
2. Enter "thermal conduction graphene" in the input field.
3. Press the Search button.

**Define a new Research Area** [What's this?](#)

**STEP 1: Create definition**    STEP 2: Refine definition    STEP 3: Save definition

**Use search terms**    Use entities    Use competencies

Define a new Research Area based on one or more search terms:

→ thermal conduction graphene | [+ Add another field](#)

Type important terms (e.g. solar flare) or an exact word or phrase (e.g. "solar flare")  
[More search tips](#)

Search

**Step 2.** You will now proceed to step 2. Here you can see how many publications worldwide (since 1996) match the definition "thermal conduction graphene".

Apply filters (if needed) to narrow down the definition of your research area. Let's say that you are interested only in academic publications. To filter out other organization types:

1. Click on the tab "Organization types"
2. Check off "Academic"
3. Click on "Limit to"

The filter you have just applied will now be shown on the right side of the screen.

**Define a new Research Area** [What's this?](#)

STEP 1: Create definition    **STEP 2: Refine definition**    STEP 3: Save definition

Definition of your Research Area: **thermal conduction graphene**  
 Publications matching the current definition: 1,251 (1996-present)

You can refine this definition by applying one or more filters:

Journal Categories	Total matching publications	1,251
Journals	<i>Why are you seeing multiple organization types?</i>	
Institutions	Academic	1,251
Countries	Government	115
<b>Organization types</b>	Other	35
	Corporate	34
	Medical	1

Currently applied filters: Academic x

Limit to    Exclude

**Step 3.** Click “Next Step” in the bottom right corner to proceed to step 3.

1. Name your research area “Thermal Conductivity Graphene (Academic)”

**Define a new Research Area** [What's this?](#)

STEP 1: Create definition    STEP 2: Refine definition    **STEP 3: Save definition**

Save your Research Area as: Thermal Conduction Graphene(Academic)

Save and finish    Save and define another Research Area

New publications matching the definition of this Research Area will be added on a weekly basis

[View Research Area summary](#)

2. Click "Save and finish".

Your research area is now computed, and you are returned to the Overview module.

See [Search tips](#) for more help with using search terms to define a research area.

### 8.3 Search tips

**Search technology in SciVal.** When you use search terms to define your research area, SciVal will search the Scopus database for publications matching your search terms. We search through the publication titles, as well as the abstracts and the keywords that Scopus assigns to each publication.

SciVal uses a search engine called Apache Solr, while Scopus uses FAST ESP. So the results returned

from search queries might differ in SciVal and Scopus, even though they use the same data source. Compare Bing and Google Search for example - both search the Web, but return different results.

#### **Key search tips for creating a Research Area**

- Choose search terms that are specific and closely related to your research area
- Avoid very general terms like 'cell'

#### **SciVal ignores accents and upper/lower case**

- The search is not case-sensitive. It will match both upper-case and lower-case text
- Terms containing accented characters will be found if you type in the unaccented version, for example u to represent ü or ú

#### **SciVal uses a stemming algorithm that reduces words to their root form**

- If you enter 'fishing', 'fished', 'fish', or 'fisher', they will all be stemmed automatically so that the search is conducted on the root word, 'fish'
- If you use the singular form of a word, your search will retrieve the singular, plural, and possessive forms of most words
- Search strings containing wild-cards are not reduced to their root form

#### **Your syntax will make a difference in how SciVal interprets your search**

- 'Solar flare' is interpreted as 'solar AND flare', which may be located next to each other or in separate sentences
- 'Solar-flare' is also interpreted as 'solar AND flare'
- Enclose the search terms in double quotes (for example "solar flare") to bring back exact matches only. This search will find publications containing 'solar flare' but not 'solar-flare'.
- Stop words are always ignored. Stop words include personal pronouns (such as 'he', 'she', 'we', 'they'); most articles (such as 'the', 'an'); most forms of the verb to be (such as 'be', 'is', 'was'); and some conjunctions (such as 'as', 'because', 'if', 'when')

#### **You can find variants using wild-card searching**

- ? replaces a single character. For example, 'organi?ation' will return both 'organisation' and 'organization'
- \* replaces one or more characters. For example, 'cat\*' will return 'catastrophe', 'catheter', 'catnip', and so on

#### **SciVal uses the Boolean operators AND, OR, NOT**

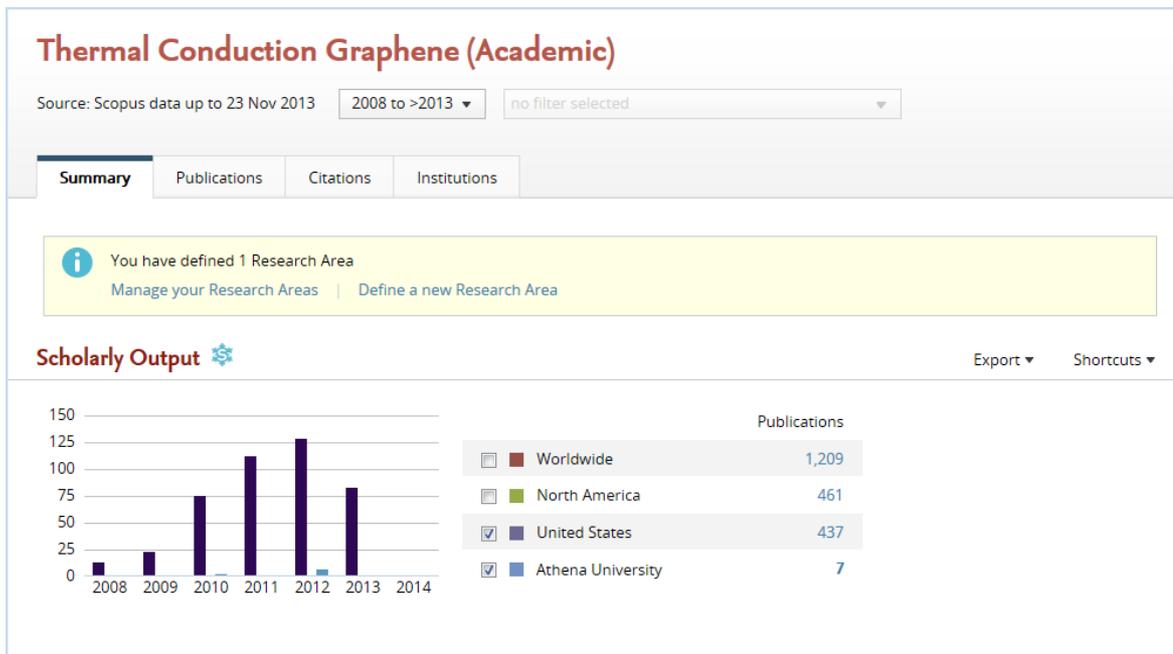
- Entering 'blood cell' will search for 'blood AND cell'
- Entering 'cat AND dog OR mouse' we will search for '(cat AND dog) OR mouse'
- If you specify parentheses, they will be followed and not overridden. If you enter 'cat AND (dog OR mouse)' we will search for 'cat AND (dog OR mouse)'

- If you don't use parentheses, we will add them to simulate operative precedence - AND takes precedence over OR. If you enter 'cat OR dog AND mouse' we will search for 'cat OR (dog AND mouse)'

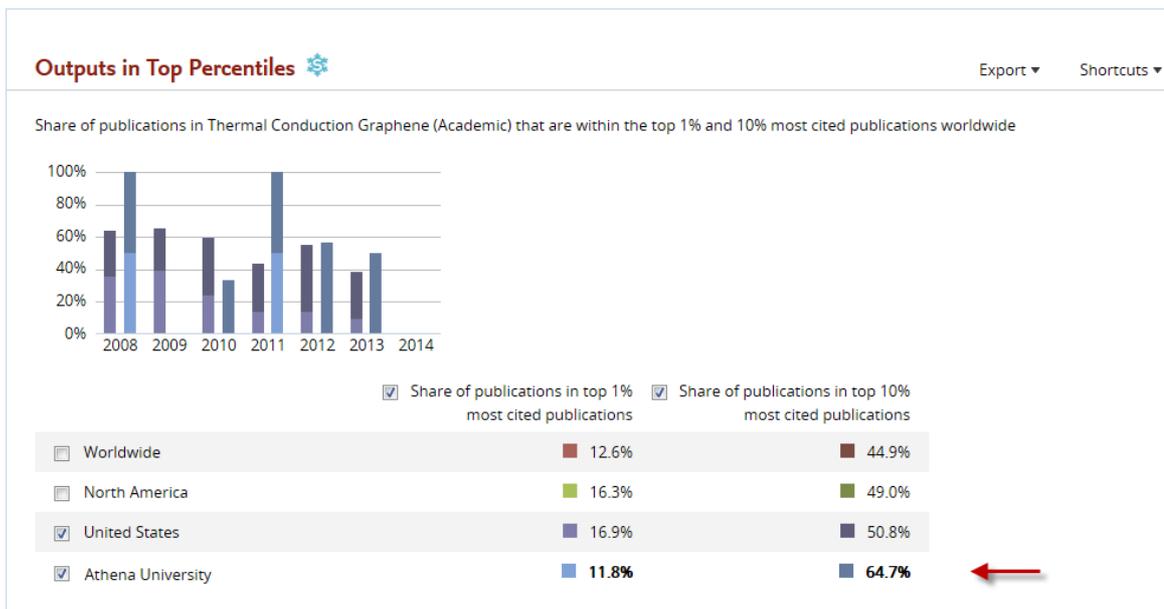
## 8.4 Analyzing a research area

### 8.4.1 Research areas in the Overview module

See your institution's output within a research area. In the Overview module, you can view your institution's contribution to a particular research area by number of publications and citations. How does your institution's output in this area compare to the national or worldwide output?



For more in-depth information, browse the Publications and Citations tabs. For example, to see how much of your institution's output was in the top 1% and 10% most cited publications worldwide, click on the Publications tab and scroll down to the Outputs in Top Percentiles section.



See which institutions are active within a research area. The Institutions tab gives you an overview of the top contributing institutions in the research area within your own region or country or worldwide. You can also see which institutions are collaborating with your institution within the research area.

### Thermal Conductivity Graphene (Academic)

Source: Scopus data up to 23 Nov 2013 2008 to >2013 ▾ no filter selected ▾

Summary Publications Citations **Institutions**

#### Most active Institutions in this Research Area

Export ▾ Shortcuts ▾

Show top 10 contributing Institutions (worldwide) ▾ in this Research Area, by number of publications

	Publications	Citations	Authors
1.  University of California at Riverside	54 ▾	4,242	54 ▾
2.  National University of Singapore	39 ▲	656	67 ▲
3.  Purdue University	30 ▲	436	23 ▲
4.  University of Texas at Austin	29 ▾	1,435	54 ▾
5.  Nanyang Technological University	25 ▲	560	49 ▲
6.  Fudan University	24 ▲	364	59 ▲
7.  CSIC	21 ▾	184	45 ▾
8.  Peking University	20 ▲	150	30 ▲
9.  Georgia Institute of Technology	19 ▲	353	61 ▲
10.  Chinese Academy of Sciences	18 ▲	214	55 ▲
13.  <b>Athena University</b>	17 ▾	447	48 ▲

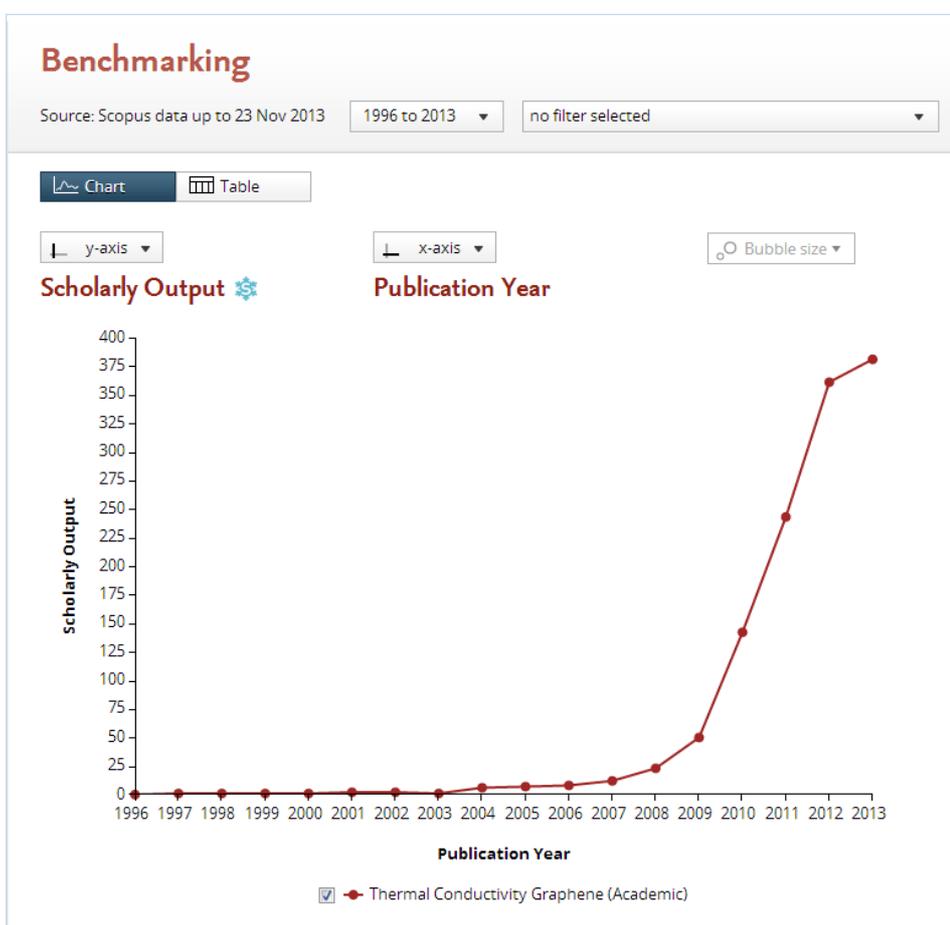
### 8.4.2 Research areas in the Benchmarking module

Use the Benchmarking module to explore the worldwide output in a particular research area from 1996 until the present.

- Go to the Benchmarking module
- Select the research area from the entity selection panel on the left-hand side

You can spot possible trends using a variety of different metrics, such as:

- Scholarly Output (number of publications)
- Field-Weighted Citation Impact (normalized citation count)
- Outputs in Top Percentiles (an indicator of research excellence)
- Journal Category Count (an indicator of multidisciplinaryity)
- Collaboration (for instance international collaboration)



### 8.4.3 Research areas in the Collaboration module

See your institution's collaboration partners in a research area. You can use the Collaboration module for an in-depth view of your institution's collaboration partners in a particular research area. Or identify potential new collaboration partners in that research area.

1. Go to the Collaboration module
2. Select your home institution from the entity selection panel on the left-hand side

3. Select the research area from the filter menu at the top of the page.

Switch from Map to Table view to view the full list of collaborating institutions. Which collaboration had the greatest citation impact?

### Collaboration by Athena University

🇺🇸 United States | Scopus affiliation ID: 60001590... [Show all](#)

Source: Scopus data up to 24 Feb 2014 | 
 2009 to 2013 ▾ | 
 Thermal Conductivity Graphene (Academic) ▾

Current collaboration
Potential collaboration

🗺 Map
Table

Export ▾
Shortcuts ▾

Find Institution 🔍

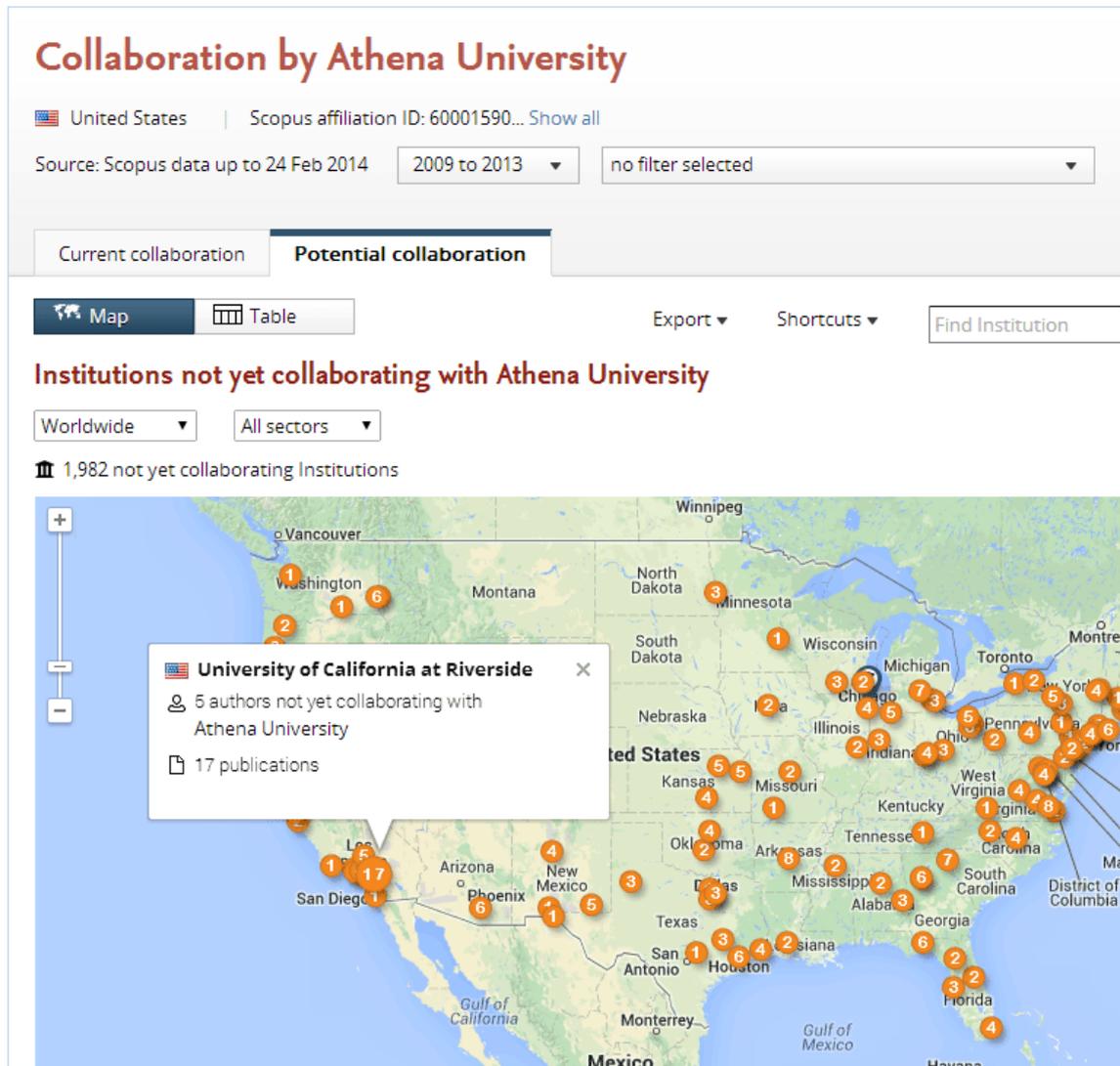
#### Institutions collaborating with Athena University

Worldwide ▾ | All sectors ▾

🏢 13 collaborating Institutions | 📄 135 co-authored publications

Institution	Co-authored publications	Co-authors at Athena University	Co-authors at the other institution	Citations ▾
🇨🇳 Dong-A University	2	3	1	0
🇺🇸 Argonne National Laboratory	2 ▲	11 ▲	7 ▲	61
🇺🇸 Los Alamos National Laboratory	2 ▲	1 ▲	1 ▲	8
🇺🇸 University of Texas at Austin	2 ▼	1 ▼	5 ▼	333
🇨🇳 Shanghai University	1 ▲	2 ▲	1 ▲	5
🇮🇳 Banaras Hindu University	1	1	1	10
🇮🇳 Indian Institute of Technology, Madras	1	2	2	0
🇨🇳 Nanyang Technological University	1 ▲	5 ▲	1 ▲	2
🇺🇸 Rice University	1	1	1	10
🇺🇸 University of Minnesota	1 ▼	1 ▼	1 ▼	80

**Find new collaboration partners in a research area.** Switch to the “Potential collaboration” tab to view potential new collaboration partners in this research area. These institutions are active in this research area, but are not yet collaborating with your institution in that area.



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