4   The Overview module

4.1   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 5,500+ institutions and 200+ countries in our database. You can even define your own research areas, publication sets 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.

View a short video about the Overview module

4.2   Working with the Overview module

4.2.1   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, publication sets and research areas.
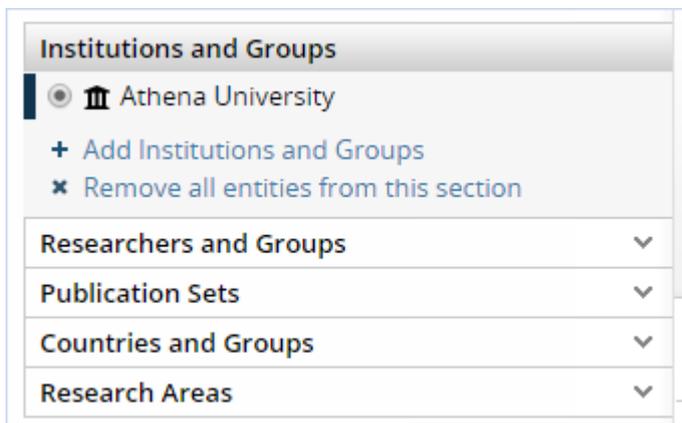
4.2.2   Selecting a year range

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.

4.2.3 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. Or use a different 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 your 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.

4.3   How can you use the Overview module?

4.3.1   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 pear 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

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.

4.3.2   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.

4.3.3 Get an overview of your institution's research strengths

Under the Competencies tab in the Overview module, you can see an analysis of your institution's research strengths, or "competencies" as they are known in SciVal.

The Competencies analysis identifies areas of research in which your institution is a global leader in terms of publications, citations, or innovation. 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 is an emerging or declining field?

To learn more, see What are competencies?

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 from the left-hand entity selection panel.

2. Click on the Competencies tab and view the list of strengths in the Table view.

3. The Circle graph 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.

4. The Matrix graph 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.

5. Click on a competency in the Table, Circle or Matrix to open a modal window with more detailed

information about that competency, such as the top institutions and researchers contributing to that field.
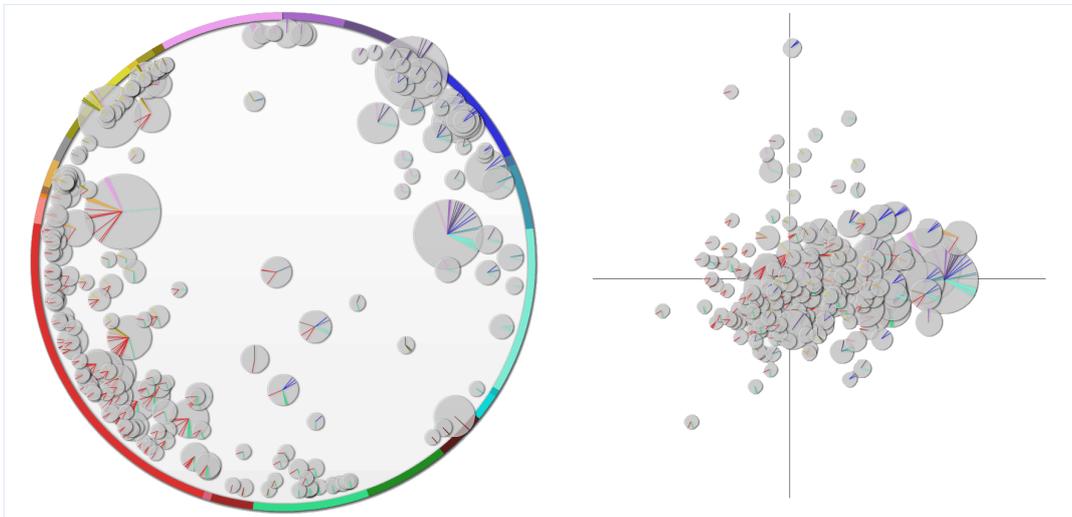
4.3.4 Get an overview of collaboration by your institution

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.

4.3.5 Evaluate the performance of a researcher or research team

SciVal lets you define and evaluate individual researchers as well as groups of researchers.

Groups of researchers 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 researcher:

1. Go to My SciVal and click on "Define a new Researcher"

2. Now go to Overview and select your new researcher.

3. You can now evaluate the research performance of this researcher. You can also see the collaborating institutions and co-authors of this researcher.

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 or citations or *h*-index. Go to the Researchers 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, select one of these group of researchers in Overview and go to the Collaboration tab. You can now see 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.

4.3.6 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.
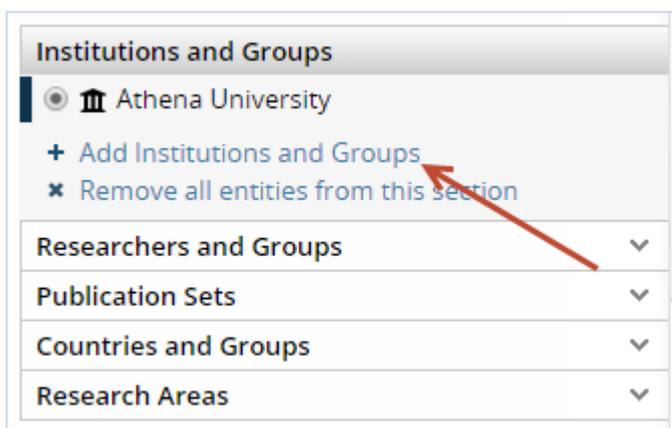
4.3.7 See your institution's national or global position

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.

United States

Source: Scopus data up to 03 Sep 2014 | 2009 to 2013 ▾ | Spectroscopy ▾

| Summary | Publications | Citations | Authors | Competencies | Institutions |

Institutions in the United States   Export ▾

595 of the 847 Institutions in the United States have publications within Spectroscopy (2009 to 2013):

	Institution	Publications ▾	Authors	Citations ▾
1.	Purdue University	278 ▲	421 ▾	3,300
2.	National Institute of Standards and Technology	242 ▾	303 ▾	4,007
3.	Athena University	220 ▾	364 ▾	1,451
4.	Harvard University	210 ▲	316 ▲	4,308
5.	University of Washington	192 ▾	376 ▲	2,294
6.	Massachusetts Institute of Technology	175 ▲	309 ▲	2,162
7.	Texas A and M University	168 ▲	244 ▲	1,389
8.	University of Michigan	159 ▲	305 ▲	2,182
9.	University of Texas at Austin	157 ▲	220 ▲	1,278
10.	University of Wisconsin	157 ▾	288 ▲	1,569

4 You can view and compare the citation impact of each institution by selecting Citations per Publication or Field-Weighted Citation Impact from the drop-down menu.

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").

4.3.8 Identify potential collaboration partners

The Institutions and Authors tabs for a country can also be used to identify potential collaboration partners - both institutions and individual researchers.

Say you are looking for collaboration partners in the United States within the field of chemistry:

1. Select United States in the entity selection panel
2. Select Chemistry from the dropdown menu at the top of the page
3. Go the Institutions and Authors tabs 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. To identify key players worldwide, select the World in the entity selection panel. You can also view the top institutions and authors in a group of countries (like the European Union, South America or BRICS) or in a group of institutions (like the Russell Group).

4.3.9 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", 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.
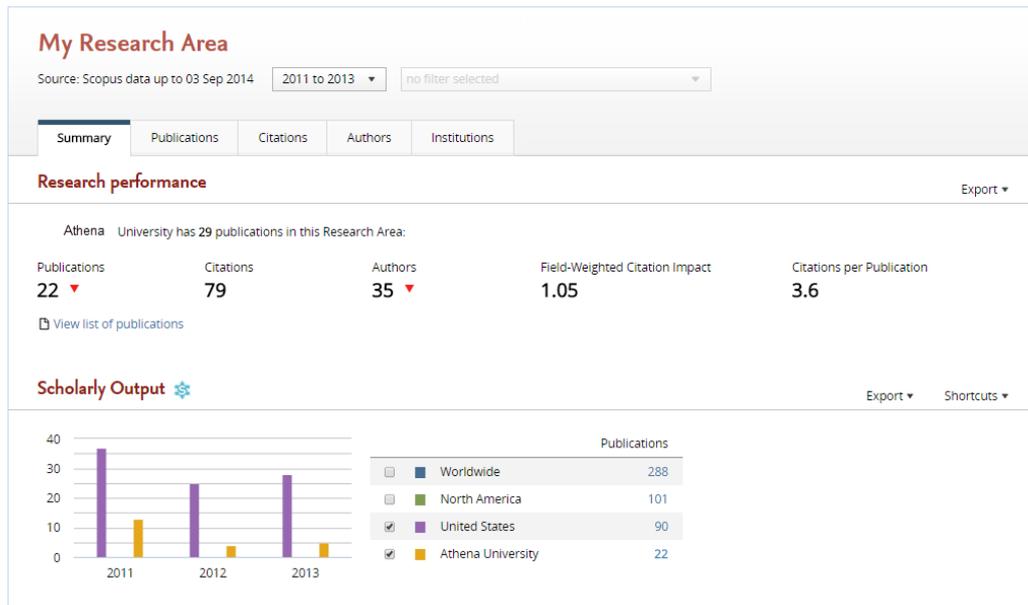
You can define a whole series of research areas, for instance a list of strategic goals of your institution, and see how your institution is performing in all of these.

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 "Publications by Research Area" section under the Publications tab gives you an overview of your institution's performance in each of the research areas you have defined.

4.3.10 Get instant performance snapshots of your Publication Sets

SciVal gives you the flexibility to define and evaluate your own Publication Sets in the Overview module. Here you can dive deeper to see the authors, intuitions and countries that have contributed to them and the impact they have.

A Publication Set is a fixed set of publications which you can create either by using a subset of a researcher's career (e.g. most cited publications) or by selecting publications on a particular topic.

To define and view a Publication set:

- Go to the Overview module and click on Publications Sets

- Click on Add Publication Sets

- Select a researcher from the list

- Select the most cited publications of the researcher and save it

- You can now evaluate the research performance of this Publication Set
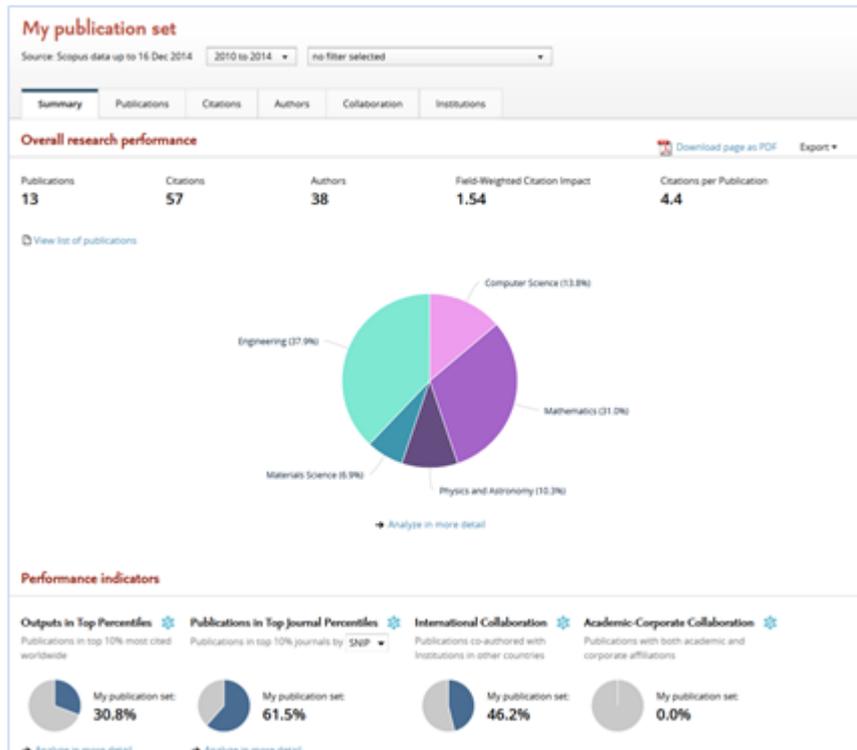
Similarly to other entity types, you can get an instant view of the output of the Publication Set in the Overview module. For example, you can find out to what extend the publications are present in the top 10% most cited publications worldwide. In addition, you can further analyze the Publication Set based on citations, collaboration, authors and institutions.

4.4 Using the Competencies analysis to identify research strengths

4.4.1 What are competencies?

Under the Competencies tab in the Overview module, you can see an analysis of your institution's research strengths, or "competencies" as they are known in SciVal. You can use this to identify or demonstrate areas of research strength at your institution. You may even identify pockets of excellence at your institution that you were not yet aware of.

This analysis can also be used to identify research strengths of any other institution, such as a potential collaboration partner. And you can see the research strengths of your country as a whole, and see what your institution contributes to each of those national strengths.
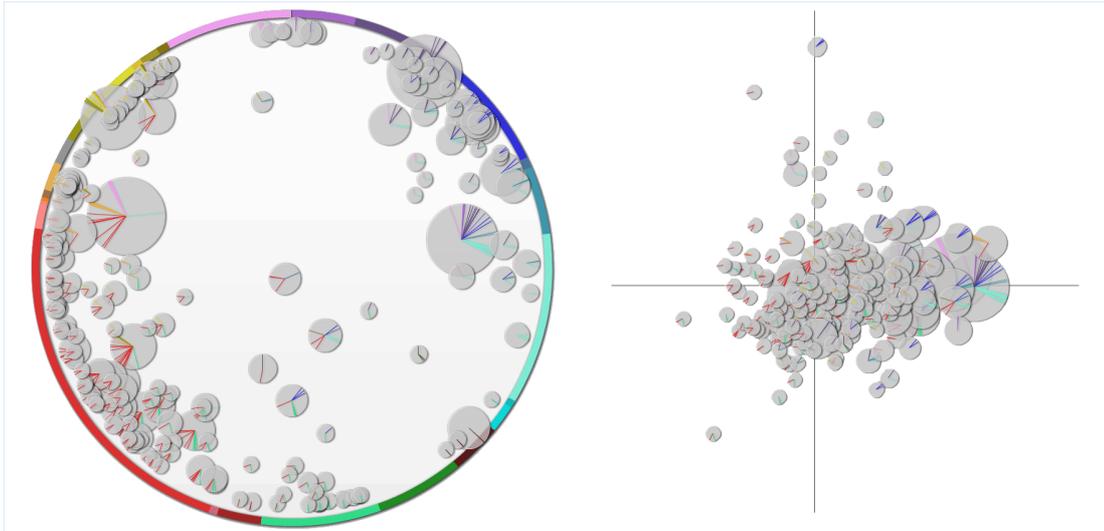
You can use the Competencies analysis to:

- identify and analyze any institution's or country's interdisciplinary areas of research excellence related to any other institution or country worldwide

- evaluate different strengths of researchers and research teams based on publication output, impact and innovativeness

- identify institutions and individual researchers for collaboration to strengthen your leadership position

How is the Competencies analysis different from the traditional ways of evaluating research?

The Competencies analysis gives you an alternative way of looking at research performance. The methodology is based on citation patterns (co-citation analysis), as opposed to the traditional publication and citation rankings, which are based on journal-based classifications. For example, traditionally, if a publication was published in the journal *Water Treatment*, it would be considered to be 100% about that field. The Competencies methodology might find that this same publication has 20% of its references to computer sciences and 10% to economics fields, giving a more accurate view of the publication and the interdisciplinary fields to which it contributes.

Using this methodology, SciVal competencies helps you identify:

- Top researchers in granular fields of research, who may not be visible in traditional publication and citation rankings due to high thresholds.

- Emerging areas of science. Since SciVal competencies are based on 5 years of data, it helps you see current research topic trends for an institution or country. If a research topic shows positive significant growth over 5 years, it may be an area that you want to focus on.

- Multidisciplinary research areas. In a traditional journal-level classification, publications are clustered into subject categories based on the journals in which they have been published. Interdisciplinary publications could be ignored if published in single-disciplinary publications. In SciVal, publications are clustered based on co-citation patterns. In other words, we apply an article-based classification. Since citations often cross multiple scientific disciplines, SciVal is able to map performance at an interdisciplinary level.

See also How SciVal identifies competencies

4.4.2 How can you use competencies?

You can use the Competencies analysis to:

- identify and analyze any institution's or country's interdisciplinary areas of research excellence

- evaluate different strengths of researchers and research teams based on publication output, impact and innovativeness
- identify institutions and individual researchers for collaboration to strengthen your leadership position

Identify or demonstrate research strengths of your institution. You can use the Competencies analysis to identify or demonstrate areas of research strength at your institution. You may even identify pockets of excellence at your institution that you were not yet aware of.

For each competency identified for your institution, you can examine:

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

To view the Competencies analysis for your own institution:

1. Go to the Overview module
2. Select your institution from the left-hand entity selection panel
3. Click on the Competencies tab

View current collaboration partners and and identify potential new partners. For each area of research identified as a competency of your institution, you can see which institutions your institution is collaborating with in that field. You can also see which institutions you are not yet collaborating with.

To see the list of collaborating and not yet collaborating institutions:

1. Go to the Overview module and select your institution from the left-hand entity selection panel
2. On the Competencies tab, click on a competency in the table (or on the Circle or Matrix graph) to open a modal window with more details about the competency
3. In the modal window, select the Institutions tab
4. Click on "View another set of institutions" and select either "Collaborating Institutions" or "Not yet collaborating Institutions"
5. Select the Compare tab to compare an institution's contribution to the field to your own institution's contribution. Here you can see where you overlap and also what your unique

contributions to the field are.

Find potential new hires. For each area of research identified as a competency of your institution, you can see who the top authors within that field are by number of publications. This can be useful to find potential new hires to strengthen your institution's competencies. You can also identify specific researchers at other institutions for potential collaboration.

1. On the Competencies tab, click on a competency in the table (or on the Circle or Matrix graph) to open a modal window with more details about the competency

2. In the modal window, select the Authors tab

3. Click on "View the top authors for a different set of institutions" and select "Other contributing Institutions" to see the top authors in this field at institutions other than your own institution

Identify research strengths of another institution. You can view not only the research strengths of your own institution, but also the strengths of any other institution. For instance, you can identify pockets of excellence of an institution that you are considering as a potential collaboration partner.

To view the Competencies analysis for your own institution:

1. Go to the Overview module

2. Select an institution from the left-hand entity selection panel

3. Click on the Competencies tab

View nationwide research strengths. You can also use the Competencies analysis to see the research strengths of your country as a whole (or any other country). This allows you to compare the strengths of your institution to the nationwide strengths. To what extent your institution is your institution aligned with national research priorities?

To view the Competencies analysis for your own institution:

1. Go to the Overview module

2. Select a country from the left-hand entity selection panel

3. Click on the Competencies tab

4.4.3 Working with competencies

View the Competencies analysis for your institution. To view the Competencies analysis:

1. Go to the Overview module and select your institution (or any other institution or country) from the left-hand entity selection panel

2. Click on the Competencies tab

3. Select the Table view to see the list of research strengths for your selected entity

View your competencies in a graph. In addition to the table view, there are two different types of visualizations available to you: the Circle and Matrix graphs.
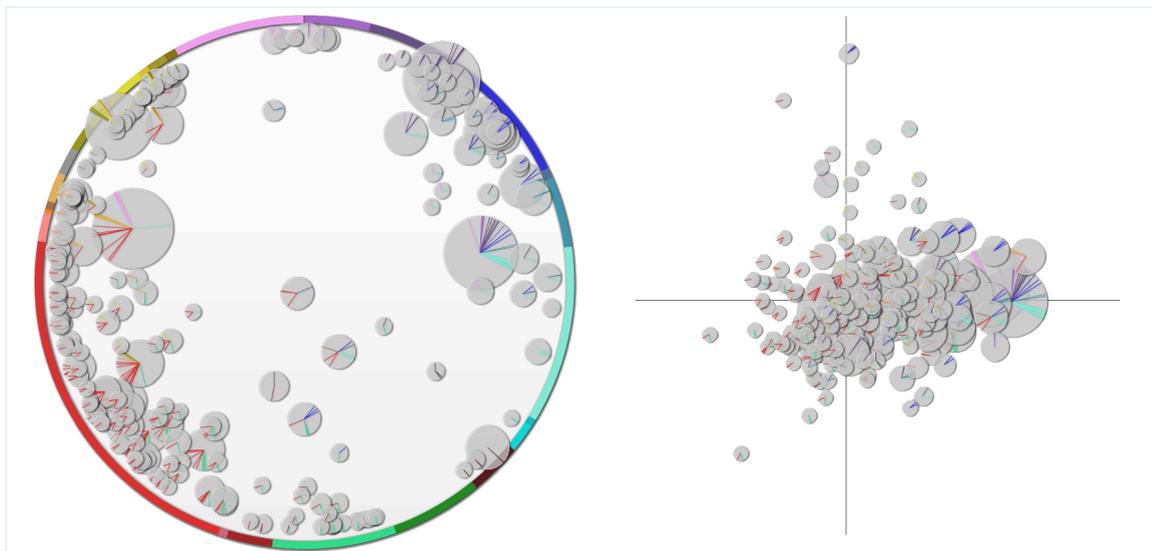
The Circle graph plots the competencies on a big wheel representing the world of science. This allows you to spot in which subject areas your institution's competencies are concentrated, and how interdisciplinary they are. The closer a competency to the center of the wheel, the more interdisciplinary that competency is.

- The outer circle represents all the published articles in Scopus across the main Scopus journal categories. The size of the pie represents the relative publication output in a specific journal category.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.

- Each bubble represents a competency for the selected institution/country.

- Bubble size of the competency represents the volume of publications published worldwide, indicating the size of the field. The larger the circle, the more publications are in that competency. The smaller the bubble, the more specialized the field it represents.

- The colored lines in the competency point to the related journal categories.

- Competencies positioned towards the middle indicate an interdisciplinary mix. Competencies

positioned towards the edge of the circle indicate a strong distinctive competency in the color-coded subject area.

The Matrix graph 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.

- The size of a circle is based on the number of publications published by the institution/country. The larger the circle, the more publications are in that competency.
- The colored lines in the circles represent the subject areas and disciplines of the publication clusters in the competency.
- The horizontal position shows the leadership position of the institution/country within that competency. The vertical position shows how fast the number of publications in that competency is growing.

The Matrix view can help you answer high-level strategic questions such as:

- How stable are our competencies?
- Which competencies require investment of our time and resources?
- Is our institution or country maintaining the lead in a certain research field?

Filter the list of competencies. Click on "Filter by" to filter the list of competencies by a specific journal category. This is useful if you are interested only in a single subject area (for instance chemistry or engineering).

You can also filter by other criteria. For instance, you could choose to view only competencies within research areas that are growing over time in terms of publication output.

Search for competencies. You can search for a specific institution or researcher in order to find competencies where that institution or researcher is active. For instance, you can search for a specific researcher at your institution to find the competencies to which that person has contributed publications. You can also search through the competencies by journal category (subject area) or journal.

1. In the Overview module, click on the Competencies tab, then click on "Search for competencies"
2. Choose to search by author (researcher name), institution, journal category or journal
3. Type the search string and use the dropdown menu marked "Limit search to:" to select whether you want to search only within your own institution, only within your own country or region, or worldwide
4. Click Search

Analyze your competencies 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 is an emerging or declining field?
- How did SciVal identify this field as a competency of your institution?

At the top of the window are the top three keywords for the field overall. Below that, on the Summary

tab, you can see the top 10 keywords for the publication output of your institution in this field. The top 10 authors, journal categories and journals for your institution are also shown. You can switch to "all contributing institutions worldwide" to see the top 10 keywords, authors, journal categories and journals for the entire field.

Combine competencies. Are two or more competencies actually part of the same area of research strength at your institution? Then you can combine them into a self-defined "research area".

1. In the Overview module, go to the entity selection panel on the left-hand side of your screen.

2. In the Research Areas section, click on "Add Research Areas", 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.

For more information on self-defined research areas, see About research areas in SciVal

4.4.4   How SciVal identifies competencies

The Competencies analysis identifies research strengths of your institution – interdisciplinary areas of research where your institution is a global leader.

The methodology behind it is based on citation patterns (co-citation analysis) instead of a traditional journal classification. Highly cited publications are clustered based on co-citation counts. These publication clusters are then grouped together into competencies. Competencies are classified as either *distinctive* or *emerging* competencies.

The analysis is always based on five years of data. For example: If you select 2013, the analysis is based on data from 2009 up to and including 2013.

View a presentation explaining the Competencies methodology (PowerPoint, 3MB)

For a detailed, step-by-step explanation of how a particular specific competency was identified:

1. Go to the Overview module and select the Competencies tab

   Click on a competency in the table (or on the Circle or Matrix graph) to open a modal window with details about that competency

2. In the modal window, select the Methodology tab for a full explanation

3. Scroll down to the bottom of the page and click the "View the graph at full size" link to see a graph showing the publication clusters that make up the competency and how these clusters are connected.
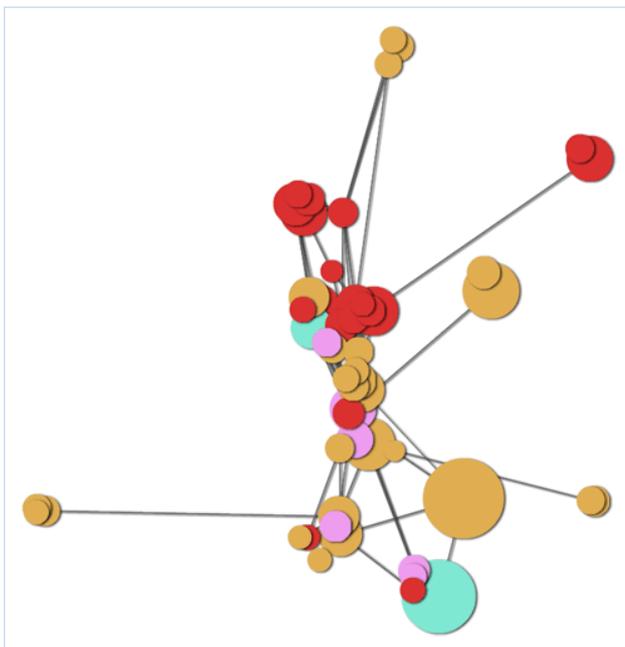
How are competencies created in SciVal?

SciVal performs a co-citation analysis on all the publications published in a specific year (e.g. 2013). This citation analysis groups the references into publication clusters representing specific areas of research. These clusters are then grouped to become competencies.

Competencies are created in three steps:

Step 1. Create publication clusters

Researchers organize themselves around highly specific research topics in which they cite each other's work. To identify these research topics, SciVal performs a co-citation analysis on all the publications published in a specific year (e.g. 2013). This analysis groups the references cited by those publications into "publication clusters" that represent specific areas of research. Publication clusters are groups of highly cited publications and the current publications that cite them.

Once the clusters have been identified, all publications published in the past 5 years (e.g. 2009-2013)

are assigned to publication clusters based on their references.

Step 2. Determine which publication clusters are strengths

Next, SciVal determines which publication clusters represent the individual institution's or country's strengths. These are the clusters where the institution/country as a whole has a significant presence, in terms of publication contribution, compared to other institutions/countries worldwide.

To determine what can be considered a significant presence, SciVal first calculates the Relative Publication Share (RPS) of each institution/country for each of the approximately 100,000 clusters. RPS is the publication output of the institution/country (over a 5-year period) divided by the publication output of the institution/country ranked #1 worldwide within a particular competency. SciVal uses a different RPS value depending on whether the competency is for an institution or a country:

Institutions	For a cluster to be selected for a competency, it must have a Relative Publication Share (RPS) greater than a specified threshold. The threshold is determined by size of the specific institution/country on a sliding scale between 0.2 and 0.6.
	The threshold may vary from year to year, since it is based on a comparison with the 5-year output of Stanford University, which has been selected as the benchmark because it is representative of a large institution. The following is the formula for determining an institution's threshold; note since that the number must be between 0.2 and 0.6, the result is rounded up or down accordingly.
	Threshold = 0.112 + (0.494 * $\sqrt{((\text{institution's 5-year publication output}) / (\text{Stanford's 5-year publication output}))}$
	Example: Chiba University
	Chiba University's threshold (in 2009) is 0.34. This is because its 5-year output is 8,406 publications and Stanford's 5-year output is 38,733 publications:
	$0.34 = 0.112 + (0.494 * \sqrt{(8{,}406/ 38{,}733)})$
Countries	For countries, the U.S. has been selected as the benchmark because it is representative of a large country.
	The RPS of a country is calculated as part of a formula which determines the number of clusters to be selected for competencies:
	Number of clusters = (number of publications belonging to the country / number of U.S. publications)*number of U.S. publication clusters with RPS >1.0
	Example: Denmark
	Number of Denmark publications: 69,124
	Number of U.S. publications: 2,406,043
	Number of U.S. clusters with RPS >1.0 : 64,516
	Number of clusters to include in the competencies for Denmark: 1,854
	1,854 = (69,124/ 2,406,043)*64,516

Step 3. Group publication clusters into competencies

The publication clusters identified in Step 2 are then grouped together to form competencies that represent an individual institution's or country's strengths. The clusters are grouped together when they share one or more publications from the institution/country.

The competencies represent research areas where the (entire!) institution or country has obtained a leading position in terms of number of publications, number of highly cited publications or innovativeness - the recentness of cited publications. These leadership criteria are described under the Methodology tab for each of the competencies.

How are competencies assigned to journal categories?

Each competencies is assigned to one or more ASJC journal categories (subject areas) based on the journal categories of the publication clusters that make up the competency. Each cluster is

assigned to the dominant journal category in that cluster.

What is the difference between distinctive and emerging competencies?

Competencies be classified as either *distinctive* or *emerging* competencies, depending on size of the field and whether or not the leadership criteria have been met.

In order to classify as *distinctive*, a competency must meet the size criterion:

- it is a significantly large field of research.

    This means that the worldwide publication output in the field over the five-year period exceeds a specified threshold. The threshold is related to the size of the institution/country. For a large institution like Harvard or Yale, the fractionalized publication count of the publication output in the field must exceed 500. Smaller institutions are given a lower threshold.

And it must also meet at least one of the three leadership criteria:

- the institution/country is ranked #1 worldwide in this field of research in terms of publication output.

    The Relative Publication Share of the institution/country is greater than 1, meaning that it is has a larger fractionalized publication count than any other institution/country in that field.

- the institution/country is ranked #1 worldwide in this field of research by number of highly cited publications.

    The Relative Reference Share of the institution/country is greater than 1, meaning that it is has a larger number of "reference publications" (highly cited publications) than any other institution/country in that field.

- the institution/country is ranked #1 worldwide in this field of research in terms of innovativeness - the recentness of cited publications.

    This is determined using the State of the Art value, an indicator of the recency of the work cited by the institution/country relative to the average recency of work cited in this field. To meet this criterion, the institution/country must have a larger State of the Art value than any other institution/country in that field. In addition, it must also have a Relative Publication Share larger than 0.8, meaning that the publication output of the institution/country should be the largest in the field, or else at least 80% of the output of the institution/country ranked #1.

Competencies that do not meet the criteria for distinctive competencies are classified as *emerging*. Emerging competencies may not meet any of the criteria, or it may meet the field size criterion but not any of the leadership criteria, or it may meet at least one of the leadership criteria but not the size criterion.

A full explanation of why a particular competency is classified as distinctive or emerging is given on the Methodology tab.