# SciVal 10 10 years of strategic insights Quick Reference Guide Research Intelligence



SciVal provides access to the research performance of thousands of research institutions and their associated researchers from 234 nations worldwide — so you can visualize research performance, benchmark relative to peers, develop strategic partnerships, identify and analyze new, emerging research trends, and create uniquely tailored reports.

### SciVal

SciVal provides access to the research performance of thousands of research institutions and their associated researchers from 234 nations worldwide. A web-based analytics solution with unparalleled power and flexibility, SciVal enables you to analyze the world of research to inform research strategy and planning and drive performance.

#### Data source

SciVal is based on publication and COUNTER compliant usage data from Scopus, the world's largest curated abstract and citation database, as well as patent-article citations, awarded grant data, mass media mentions from NewsFlo and policy citations from Overton.

SciVal uses Scopus data from 1996 to present, covering over 60 million records from more than 7,000 publishers worldwide. These include:

- 29,200 serial titles such as peer-reviewed journals
- 158,000 conferences
- **336,000** books
- 74,300+ individual book series volumes
- 12.2+ million conference papers

#### Metrics

SciVal offers an extensive array of simple and more sophisticated metrics, including Snowball Metrics, which were defined through an academic-industry partnership to enable their confident and appropriate use in strategic decision making and benchmarking.

For further information about the metrics available in SciVal and how to use them, please see the Research Metrics Guidebook, as well as the Usage and Patent Metrics Guidebook.

1 snowballmetrics.com



### Table of contents

### 1.0 Build your views on global research



### Visualize research performance

Develop, advance and monitor your research programs and strategy with access to research performance summaries of you and your peers.

- Identify and analyze unique research strengths and multidisciplinary research areas.
- Understand research strengths in specific Research Areas, Publications Sets or Topics



### Develop collaborative partnerships

Advance your research programs with insights into global expertise across sectors and fields.

- Evaluate your existing research collaborations and identify potential new partners.
- Enhance team building efforts by uncovering research expertise on and beyond campus across all fields of research



### Benchmark and monitor progress

Evaluate and benchmark your research performance in comparison to others in your region, country and the world.

- Compare your performance to peer research groups and institutions over time.
- Choose from an array of research metrics, zoom in on a year range or subject area and build insightful reports.



#### Analyze research trends

Monitor research trends and gain a deep understanding of research fields and leading experts globally.

- Analyze the developments in user or pre-defined fields of interest through graphs, tables, charts and keyphrase analyses.
- Identify and investigate individuals or groups contributions to fields through an array of metrics and analyses.



### Conduct a portfolio Topic analysis

The Topic Prominence in Science feature enables you to run a portfolio analysis to see which research Topics your institution is currently active in, and which Topics have high momentum, and so are likely to be well-funded.<sup>1</sup>

- See Topic overviews for entities such as institutions, countries and researchers
- Get insight into which researchers are active in specific Topics, which Topics your peers and competitors are active in and the related Topics of which you should be aware



### Showcase your impact

Uncover and demonstrate the broader impact of your research on society. Identify individuals or outputs influencing policy or being cited in patents.

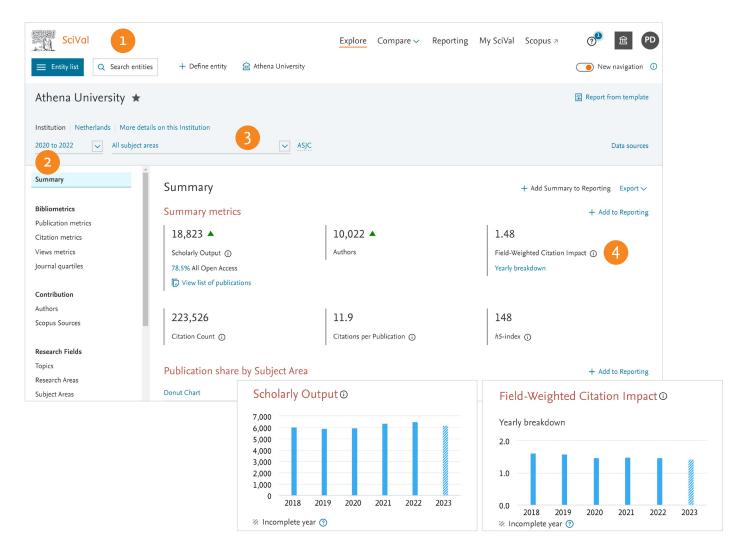
- Identify policy mentions and patent citations to develop clear impact narratives for funding bids and case studies
- Strengthen promotion and tenure applications with quantitative evidence of your research impact beyond citations

1 https://www.sciencedirect.com/science/article/abs/pii/S1751157717302110



### 1.1 Visualize research performance

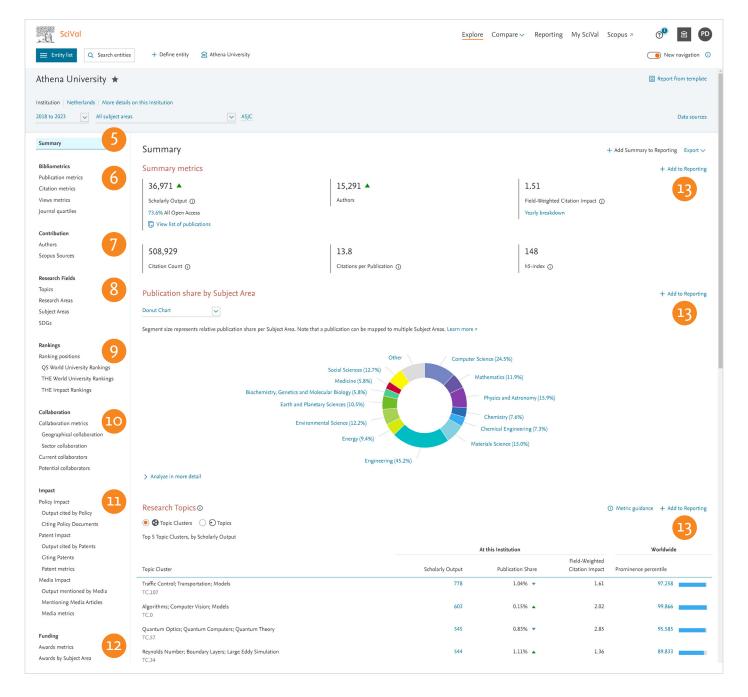
Research performance summaries of any desired research entity such as Institutions, Countries, Research Groups and Topics.



**Summary page** provides at-a-glance research performance overviews of any selected entity.

- 1. Entity list allows you to select any entity of interest from:
  - Institutions and Groups
  - Researchers and Groups
  - · Countries / Regions and Groups
  - Publication Sets
  - Research Areas
  - Topics and Topic Clusters
  - Scopus Sources
  - Add an entity such as an Institution or Country / Region by typing the name in the search box. SciVal will provide you with a list of pre-defined entities matching your search to choose from

- 2. Select your desired year range from:
  - 3 years\*
  - 5 years\*
  - 10 years\*
  - +current year and beyond
- 3. Filter your chosen subject classification by subject area with the default being the Scopus All Subject Journal Classification (ASJC). You can also choose from the Fields of Research (FoR), Fields of Research and Development (FORD), Research Excellence Framework (REF) 2014, QS, THE or KAKEN classifications. Additionally, the SDG classification is available in the Benchmark (all metrics) section and on pages that are part of the 'Impact' subscription
- 4. Click the information icon to learn more about a metric, including its strengths and weaknesses



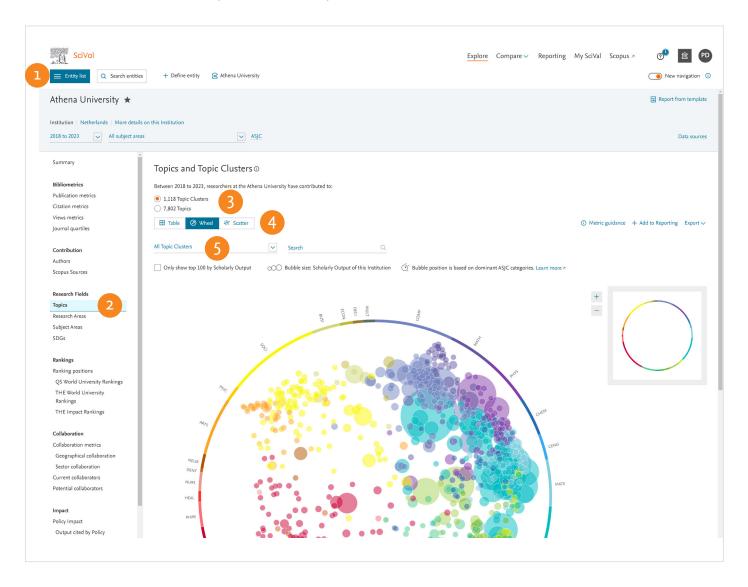
**The pages in Explore** provide a comprehensive understanding of entities based on the following themes:

- 5. Overall Summary
- 6. Bibliometrics
- 7. Contribution
- 8. Research Fields
- 9. Rankings (for Institutions only)
- 10. Collaboration
- 11. Impact
- 12. Funding
- 13. Add to Reporting to create a Report based on several Analyses

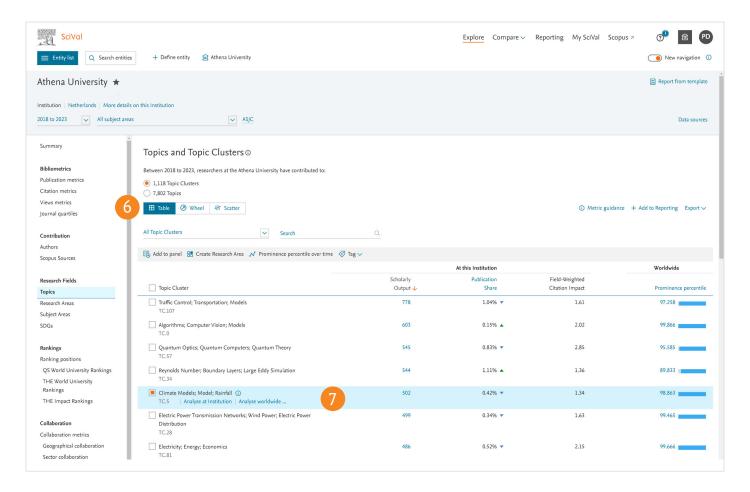


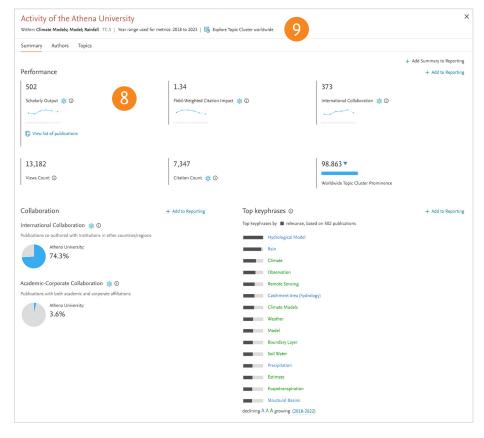
### 1.2 Conduct a portfolio Topic analysis

See which Topics your institution is currently active in, and which Topics have high momentum — therefore are more likely to be well-funded. Get insight into which researchers are active in specific Topics, which Topics your peers and competitors are active in, and related Topics of which you should be aware.



- Start from anywhere in Explore, open the entity panel and select an Institution
- Go to the Topics page to see which Topics and Topic Clusters the Institution has contributed to and is active in
- **3. Using the radio buttons** you can either analyze individual Topics or the aggregated Topic Clusters
- 4. Chose between table view and different visualization options
- Limit to view the top x% of worldwide Topics or Topic Clusters by Prominence



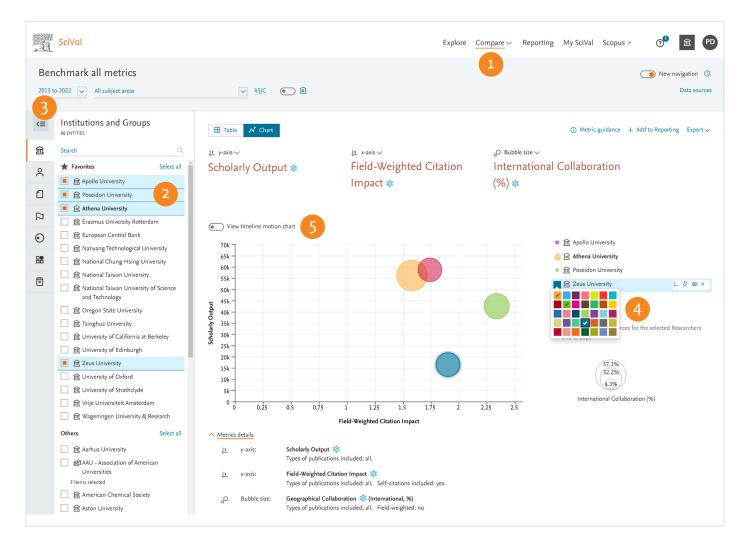


- **6. Select the Table** view to get an overview of the Topics or Topic Clusters ranked by Scholarly Output
- 7. Select a Topic or Topic Cluster and analyze it in further detail for an institution
- 8. Get a quick overview of the Topic for an Institution, the Field-Weight Citation Impact, the level of international collaboration and the underlying keyphrases sorted by relevance
- Explore the Topic or Topic Cluster worldwide



### 1.3 Benchmark and monitor progress

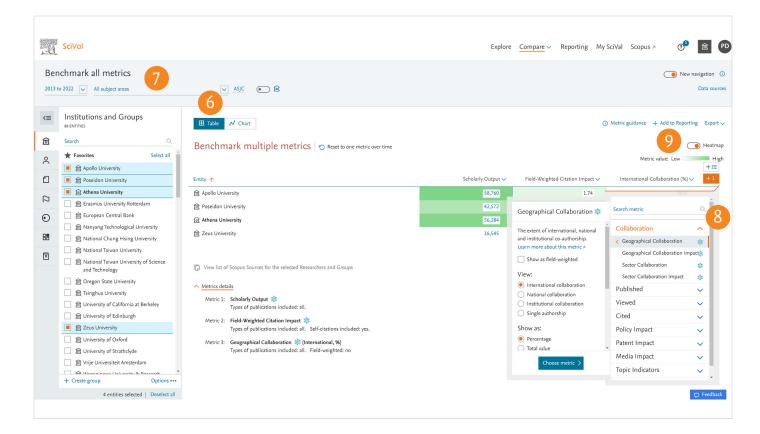
Assess your strengths and areas for improvement by analyzing custom selections of entities, metrics and subject areas enabling confident comparison and benchmarking.



- Benchmark all metrics tab in the Compare section
  provides advanced capabilities to perform flexible and indepth analyses across a diverse set of entities, metrics and
  subject areas
- 2. Using the entity selection panel, select any desired combination of entities you wish to analyze and benchmark
  - Add Institutions or Countries / Regions by searching or enter the Advanced Search to view a list of pre- defined institutions and Countries to select from
  - Add Researchers, Publication Sets, Research Areas and Groups by creating your own (see pages 15 and onwards)

- 3. Select year range from 1996 to the current year and beyond
- 4. Show entity names on the Chart by clicking the pin icon which appears after hovering on the entity name
- 5. See progress over time through the timeline motion chart

Select a country, region or 'World' to contextualize your relative performance, or create bespoke research areas to benchmark against a research topic.



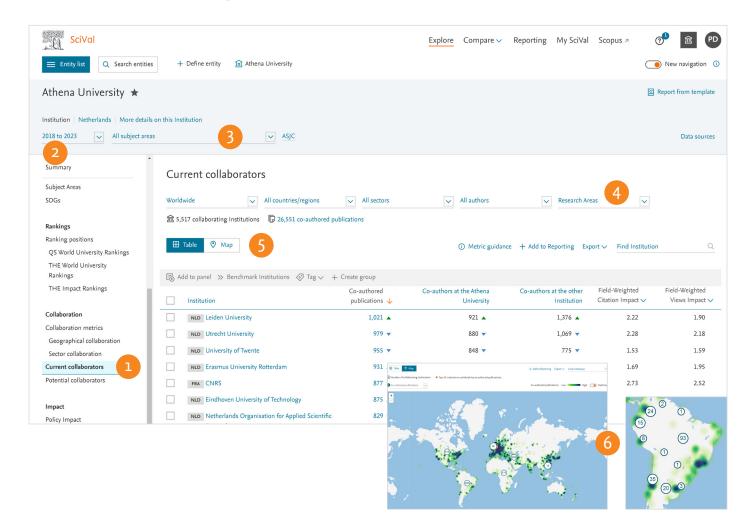
- **6. Switch to table view** to analyze metric values and add more metrics to the analysis
- 7. Filter by subject area
- 8. Add up to 25 metrics to the table by searching and selecting metrics one by one in the metric selector, or in bulk using the add and manage metrics modal
- 9. Add the analysis to a Report

The numbers within the table are clickable, and will show you the underlying publication data.



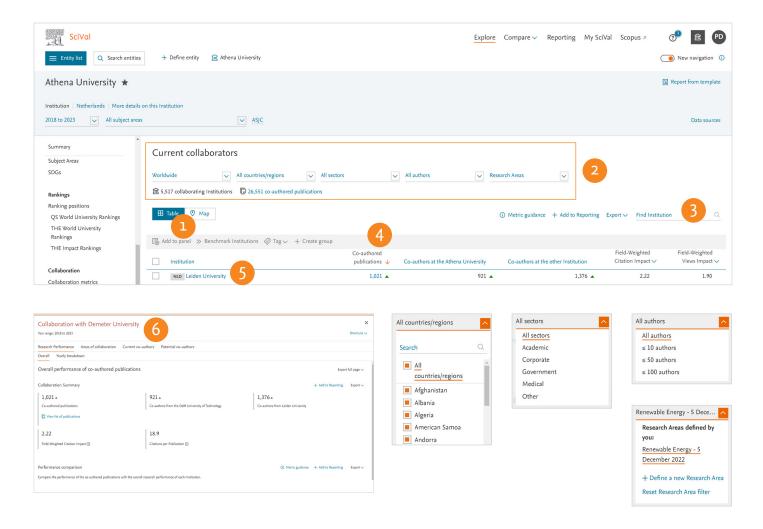
### 1.4 Identify and evaluate existing and potential collaboration partners

Access a list of Institutions that you collaborate with or have the potential to collaborate with. Start with a worldwide view of your institution's collaboration landscape, and then zoom in to individual collaborating Institutions and Researchers globally. You can also use the subject area filters, including self-defined Research Areas to focus on current and potential collaborators aligned with key areas of focus.



- Current collaborators page helps you explore existing collaborative links, based on co-authorship, allowing you to rank Institutions based on co-authored publications and impact related metrics
  - Potential collaborators page identifies Institutions that you haven't yet co-authored any publications with
- 2. Select your desired year range from:
  - 3 years\*
  - 5 years\*
  - 10 years
  - \*+current year and beyond

- Filter by subject using any of the 6 subject classifications available
- 4. Filter by self-defined Research Areas to identify current and potential collaborators aligned with key areas of focus (available for your home institution)
- Select the Map to explore and visualize an Institution's collaboration landscape
- 6. Click on regions and zoom in to investigate and visualize collaboration profiles at the country and state level, and see the collaborative links at each Institution



- Select the table view to access the list of collaborating institutions along with some key metrics
- 2. Limit by Countries / Regions, sector, number of authors or by a user-defined Research Area
- 3. Search institutions by name
- 4. Sort Institution list by:
  - Co-authored publications
  - Co-authors at selected institution
  - Co-authors at the other institution
  - Field-Weighted Citation Impact
  - Field-Weighted Views Impact
- 5. Select an Institution of interest to assess the collaborative links more fully across a range of metrics
- 6. Explore the details of the collaboration, including:
  - Identifying the key researchers from each institution driving the collaborative links
  - Comparing the institution across Scholarly Output, Total authors and the THE WUR, THE Impact, QS WUR and ARWU Rank

#### Evaluate your potential collaboration partners

Once you have identified Institutions and Researchers to potentially collaborate with, you can:

#### Use the Explore section to:

- Gain a balanced overview of the selected institutions or researchers
- · Identify other Researchers of interest
- Explore the institution's Topics and Topic Clusters

### Compare potential strategic partner institutions using the Compare section to:

- Evaluate the selected institutions across a range of metrics
- Model teams and scenarios with researchers of interest
- Benchmark the teams and scenarios against potential competitors or peers

### Review the collaboration profiles of Institutions of interest using the Collaboration page to:

- Identify other existing co-author relationships across all subjects
- Analyze collaborators per discipline and evaluate their success and potential further



### 1.5 Analyze Research Trends

Analyze the research trends of any self or pre-defined Research Area, Publication Set, Topic or Topic Cluster with citation, publications and usage data, to discover key researchers, rising stars and current developments in fields of interest.

A Trends subscription provides the ability to perform advanced Topic centric analysis of any Research Area, Publication Set, Topic or Topic Cluster

- Using the entity selection panel, select the self- or predefined Research Area, Publication Set, Topic or Topic Cluster you wish to analyze
- 2. Select your desired year range from:

3 years

5 years\*

10 years

\*+current year and beyond

- 3. Summary page provides an overview of your Research Area, Publication Set, Topic or Topic Cluster of interest. Several key metrics are displayed at the top of the tab followed by a word cloud which provides a visual representation of the top 50 keyphrases within the area of interest
- 4. Additional pages provide insights into the selected Research Area, Publication Set, Topic or Topic Cluster across:
  - Institutions
  - Countries / Regions
  - Authors
  - Scopus Sources
  - Keyphrases
  - Related Topics (for Topics)
  - Topics (for Topic Clusters)
  - Funding Bodies (for ASJC pre-defined Research Areas)
- 5. Scroll down the Summary page to see
  - Most active Institutions, Authors, Countries / Regions and Scopus Sources related to the Research Area, Publication Set, Topic or Topic Cluster
  - Representative publications when analyzing a Topic, allow you to focus on the 10 publications most strongly linked to the Topic of interest
- 6. Institutions page details the Top 100 institutions as a table or allows you to view the geographical distribution of the Top 100 institutions via the map view
- 7. Keyphrases page allows you to analyze the Top 50 keyphrases relating to the area of interest

#### How are keyphrases calculated?

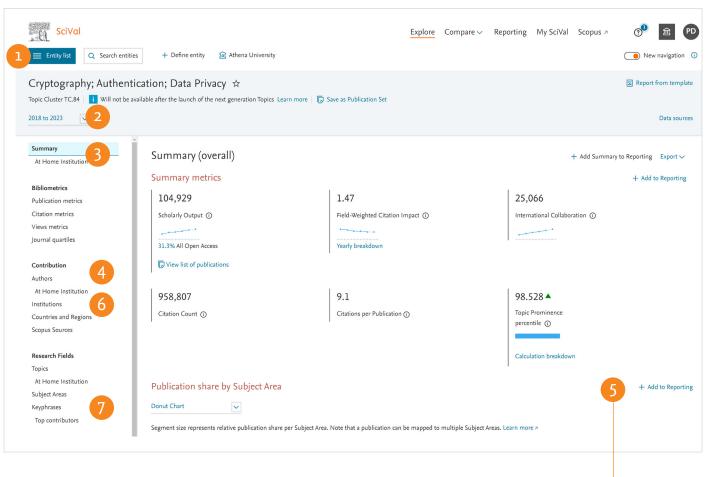
SciVal uses the Elsevier Fingerprint Engine (R) to extract keyphrases within the Research Area, Publication Set, Topic or Topic Cluster.

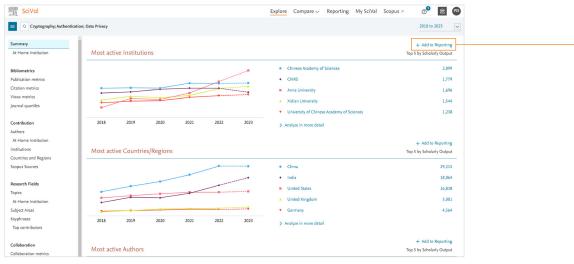
The text mining is done by applying a variety of Natural Language Processing techniques to the titles, abstracts and keywords of the documents in the Research Area, Publication Set, Topic or Topic Cluster in order to identify important concepts.

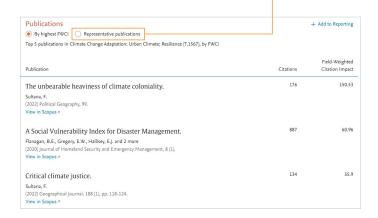
Concepts are matched against a unified thesaurus spanning all major disciplines. For each document, we take the list of standardized keyphrases and select which ones are important based on Inverse Document Frequency (IDF). This technique incorporates a factor that diminishes the weight of

Words that occur frequently in the document set, and increases the importance of words that occur rarely. Each keyphrase is then given a relevance between o and 1, with 1 given to the most frequently occurring keyphrase. Remaining keyphrases are given a value based on their relative frequency.

In SciVal, we take a weighted list of keyphrases per publication and aggregate this to each entity such as a Research Area or Topic.



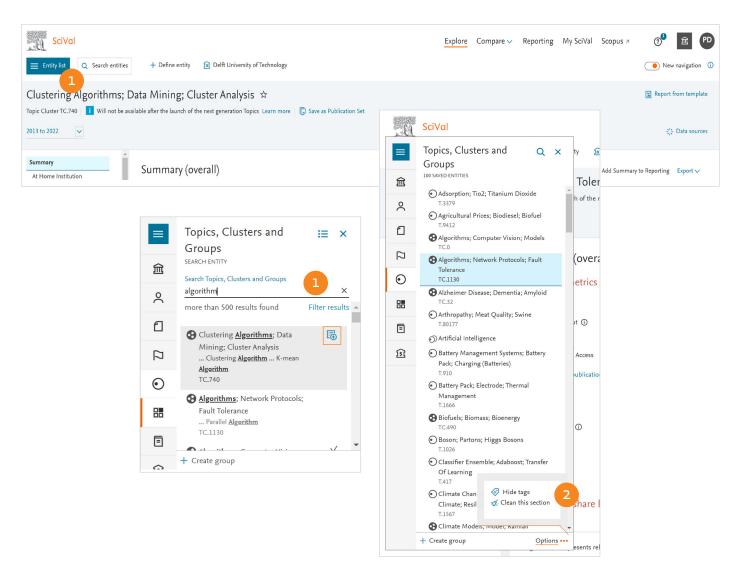






### 2.0 Working with entities

Use the entity selection panel, located on the left-hand side of the screen, like a workspace to define, add, remove, organize and use all your entities of interest. You can choose from the thousands of pre-defined entities (Institutions, Countries, Scopus Sources) or define your own entities (Researchers, research teams, Publication Sets or Research Areas).



#### 1. Add entities

- Open the entity panel by clicking on Entity list or use the 'Search entity' field OR
- Begin typing the name of the entity of interest and click the name when it appears in the search results OR
- Click 'Add to panel' option next to the entity name to select multiple entities from your search results OR
- Click the 'Define new entity' link to define an entirely new entity

**Note:** Click 'Add to panel' option, denoted by orange box, next to the entity name to select multiple entities from your search results.

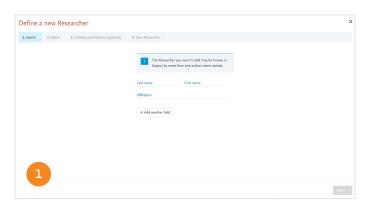
#### 2. Remove entities

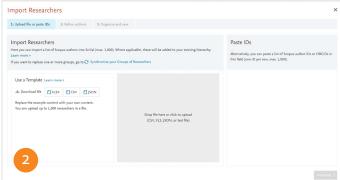
- Click the 'remove' (x) icon that appears when you hover over an entity in the panel
- Select 'Clean this section' in the Options menu to, for example, remove all Institutions from the 'Institutions' section
- Removing entities from the entity selection panel does not permanently delete them and they can be added back at any time

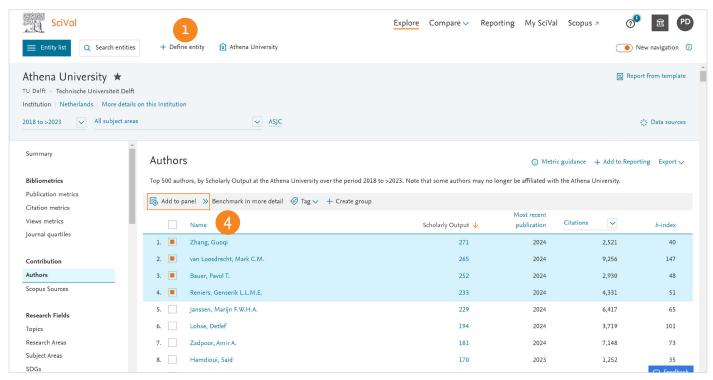
**Note:** Defining Research Areas, Researchers and Publication Sets is covered in the following sections.

### 3.0 Define Researchers and Groups

Define Researchers and Groups via intuitive workflows.







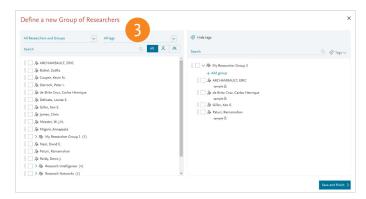
#### 1. Define a new Researcher

- Click Researcher in the Define entity link or the Create / Import link at the bottom of the Researchers and Groups section in the entity panel
- Follow the workflow to identify and add the researcher to SciVal

#### 2. Import Researchers

- · Click 'Import Researchers'
- Use the XLS, CSV or JSON templates, a text file, or paste a list of Scopus author IDs or ORCIDs (up to 1,000)
- Refine profiles where required
- Add profiles to a new Group or existing hierarchy



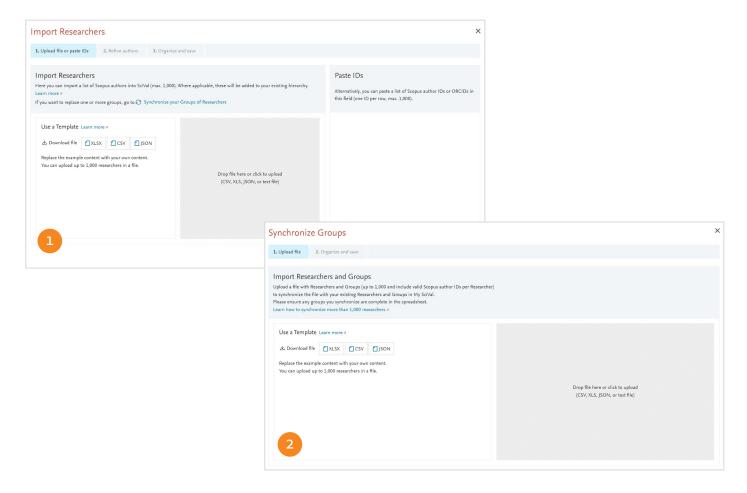


#### 3. Define new Group of Researchers

- Drag and drop any of your self-defined Researchers into one or more Groups
- 4. Select from tables Select authors from the Authors page and click 'Add to panel' to quickly add Researchers for further analysis

## 4.0 Creating and importing departmental or institution wide hierarchies

In addition to the flexibility to analyse any researcher or group of researchers from any institution, you can also recreate your institution's complete hierarchy in a few steps.



#### 1. Importing your institutional hierarchy, or part of it:

#### a. Download and populate the Template:

- Click the Add link in the Researchers section of the entity selection panel, the 'Define new entity' option or My SciVal and then'Import Researchers'
- Download an example Template in XLS, CSV, or JSON format
- Complete the Template (up to 1,000 Researchers at a time)

#### b. Upload the completed Template:

- · Drop the file into SciVal or click to upload
- Refine unmatched authors or export them to refine them offline
- Check the hierarchy structure
- c. Save and finish

#### 2. Modifying existing hierarchies and synchronizing:

#### a. Export existing hierarchy:

- Go to My SciVal and select Researchers and Groups from the drop down on the top of the page or the left-hand entity selection panel
- · Select the hierarchy of interest and click 'Export'
- Add or remove Researchers as required to complete the new Template (up to 1,000 Researchers)

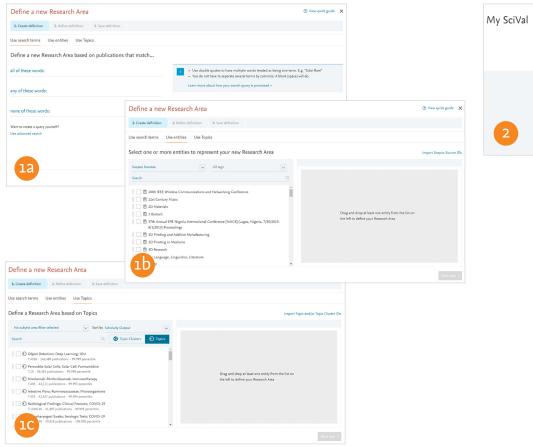
#### b. Synchronize the updated hierarchy:

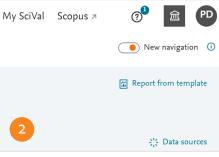
- Click the 'Add New' link in My SciVal or the 'Add' link in the entity selection panel on any page
- Click 'Synchronize Groups' and upload your updated hierarchy file

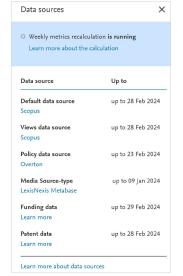
#### c. Verify changes and finish

### 5.0 Define your own Research Areas

SciVal offers the flexibility to analyze a variety of pre-defined Research Areas or to self-define bespoke research areas, representing any field of interest to you.







- Research Areas can represent an area of strategic priority or any other field of interest and can be built using any of the components detailed below:
  - **a. Search terms** Define your research area based on publications that match a search query.
  - b. Entities Select and combine any of the below
    - Institutions (or affiliations)
    - · Countries / Regions
    - Subject Areas
    - Scopus Sources
  - Topics Select and combine Topics to create a new Research Area
- 2. Get an estimate of when your entities will be ready to use
  At the end of the creation process, you will be informed
  if the weekly metrics recalculation is running and so will
  delay the creation of the entity. Click the Data sources
  link to see when the next weekly recalculation will occur

#### **Pre-defined entities**

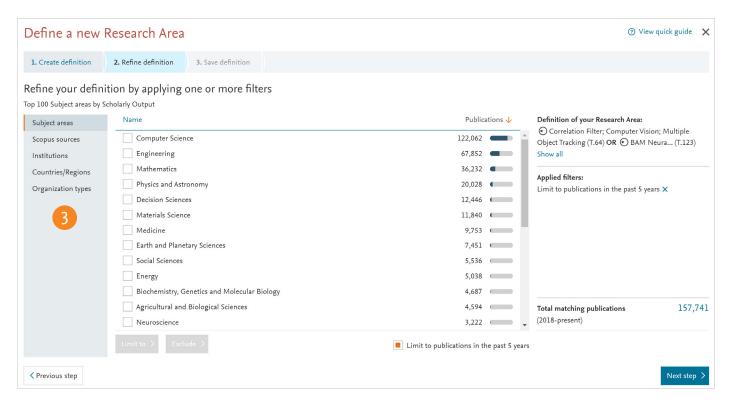
SciVal provides access to pre-defined profiles for thousands of institutions and their associated researchers, from 234 nations worldwide.

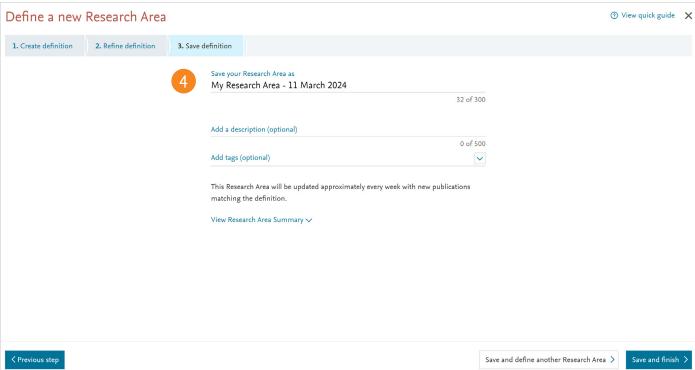
Furthermore, several groups of institutions and countries are made available such as EU27, US states, German Bundesländer and more.

Pre-defined Research Areas are also available including the UN Sustainable Development Goals and the All Subject Journal Classification (ASJC) of Scopus.

**Note:** Research Areas with less than 10,000 publications are available to analyze immediately. However, Research Areas with greater than 10,000 publications can take around 6 hours to be computed and there is a 200,000 publication limit. You will be notified when a Research Area is available for use in SciVal.





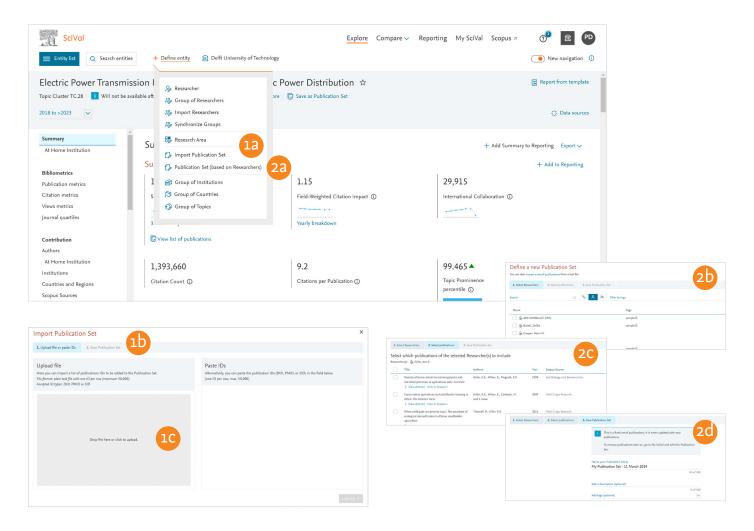


- 3. Refine the Research Area by limiting to publications in the past 5 years, or by limiting or excluding specific Subject areas, Scopus Sources, Institutions, Countries / Regions or Organization types
- **4. Name your new Research Area**, add relevant tags if desired, and save for analysis throughout SciVal.

The Research Areas can then be analyzed across the platform

### 6.0 Defining Publication Sets

Create bespoke Publication Sets representing strategic priority areas or for scenario modeling.



- 1. Importing Publication Sets:
  - a. Import Publication Sets
    - Click Import Publication Set in 'Define entity' section
    - Select ID format for your Publications of interest from one of the following:
      - Scopus EID
         Unique identifier assigned to all Scopus records
      - PubMed ID
      - DOI (Digital Object Identifier)
         Persistent identifier managed by the International
         DOI Foundation for use on digital networks

Unique identifier assigned to PubMed records

- b. Paste IDs or create and upload a text file (ANSI format) containing up to 50,000 publication IDs, one per line, and follow the workflow to upload the file
- c. Confirm publications and save

- 2. Define a Publication Set from a subset of any Researcher's publications:
  - a. Create a new Publication Set
    - Click Publication Set (based on Researchers) in 'Define entity' section

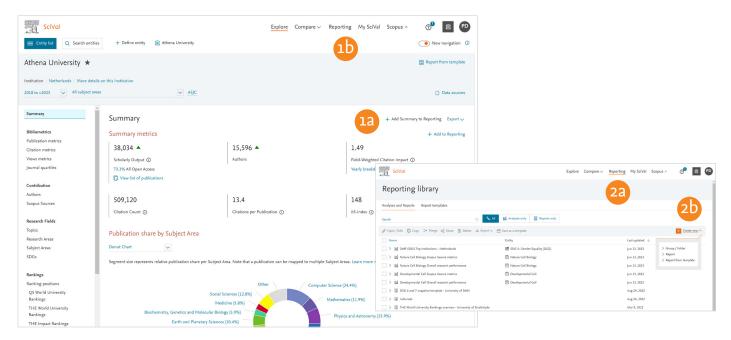
**Note:** You need to have pre- or self-defined researchers added to your entity selection panel to activate this menu.

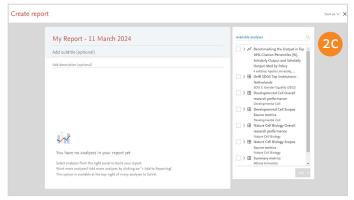
- b. Select Researcher(s) of interest
- c. Select the required publications
- **d.** Save Publication Set after adding a name and tags, if required



### 7.0 Reporting in SciVal

Create rich reports specifically tailored to support your institution's research strategy. Speed up repetitive tasks by selecting from one of the SciVal-created or customer-endorsed report templates or by creating your own report template.







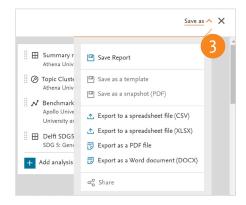
#### 1. Saving and using analyses

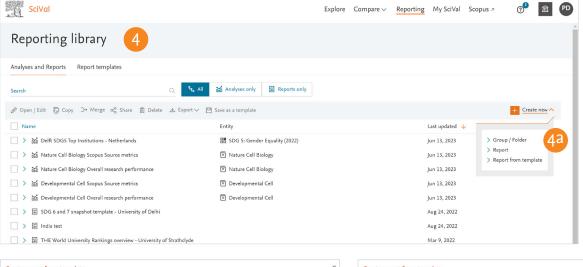
- Select the entities, metrics and options of interest and click 'Add to Reporting'
- **b.** Go to 'Reporting' in the global navigation bar at the top of the screen to add analyses to an existing Report or create a new one

#### 2. Creating, Sharing and Exporting a Report

- **a.** Go to 'Reporting' in the global navigation bar at the top of the screen
- b. Click 'Create new' and select 'Report'
- c. Select the analyses you would like to use and click add
- **d.** Review the Report layout, adjust and add descriptions as needed

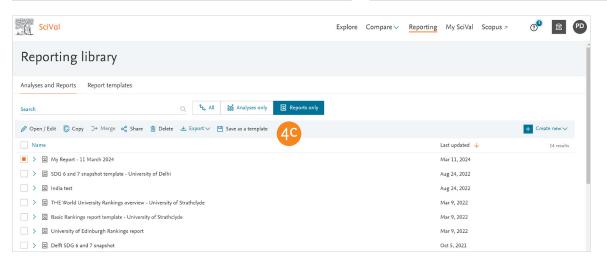
3. Save as Template, Share or Export your Report as required











#### 4. Using report templates

- a. SciVal-created report templates, including customerendorsed templates
  - Go to Reporting and click 'Create new' and then 'Report from Template'
  - Select the template you would like to use from 'Provided by SciVal', 'Provided by Customers', 'Provided by your Institution' or 'Defined by You'

#### b. Select the entity or entities you would like to analyze

 Follow the steps to name and save your Report, which will now be a standard Report that you can change, remove, add analyses to or share

#### c. Creating your own reporting template

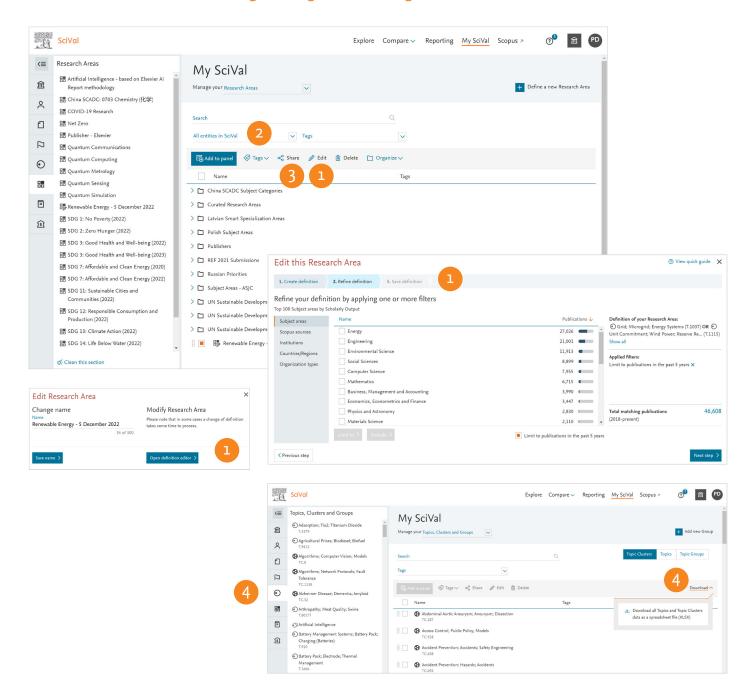
- Select the Report you would like to save as a Template
- · Click the 'Save as Template' link
- Name and save the Template and it is now available with the other Report Templates in the tab 'Defined by you'

**Note:** A template with analyses from Compare, plus an Explore page requires an additional step where a 'core' entity is selected.



### 8.0 My SciVal

In addition to managing entities within the entity selection panel, My SciVal provides additional functions including editing and sharing self-defined Research Areas.



- Edit self-defined Research Areas by adding more search terms or applying additional filters
- 2. Add tags representing departments or projects to manage entities with ease. See all tags in your Tag Manager, untag entities, merge or delete tags.
- 3. Share entities with other SciVal users
- 4. Download the information about all Topics & Topic Clusters in a single spreadsheet

Entities can be removed from the entity selection panel but will remain in My SciVal. They can then be added back to the entity selection panel from within My SciVal at a later date. Deleting an entity from My SciVal removes the entity from SciVal completely.

### SciVal

### For more information about SciVal, visit elsevier.com/products/scival

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**AUSTRALIA** 

Tel: +61 2 9422 8500

ASIA

Tel: + 65 6349 0222

JAPAN

Tel: + 81 3 5561 5034

KOREA AND TAIWAN Tel: +82 2 6714 3000

EUROPE, MIDDLE EAST AND AFRICA

Tel: +31 20 485 3767

NORTH AMERICA, CENTRAL AMERICA AND CANADA

Tel: +1 888 615 4500

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