A Deeper Dive into SciVal: Data and Metrics

Additional Structure and Functionality of the SciVal Database

Workshop Structure

- Additional Functions
  - Media Mentions, Patents, Funding Information
- Building Departments and Groups
- New Features: Scopus Sources and Collaboration Matrix
- Some guidance on what type of metrics to look at
- Comparison with Other Data Sources
  - Google Scholar
- Examples
  - Identifying media mention sources
  - Ranking Institutions by Funding
  - Comparing authors on different data platforms
- Q&A and practice time

Background

- This session is assuming some level of exposure to SciVal in the past
  - Attendance at a prior workshop, independent usage, review of online material
  - It's ok if you don't have that, slides will skip over basics and fundamental information

Media Mentions

- SciVal contains media mention information powered by Newsflo (a third party)
  - Lists of media mentions online and in print (only research mentions, not things like sports scores)
  - No distinction between positive or negative coverage
  - Focus on English language content, limited international comparative ability
- Found in the “Social Impact” tab within the larger modules

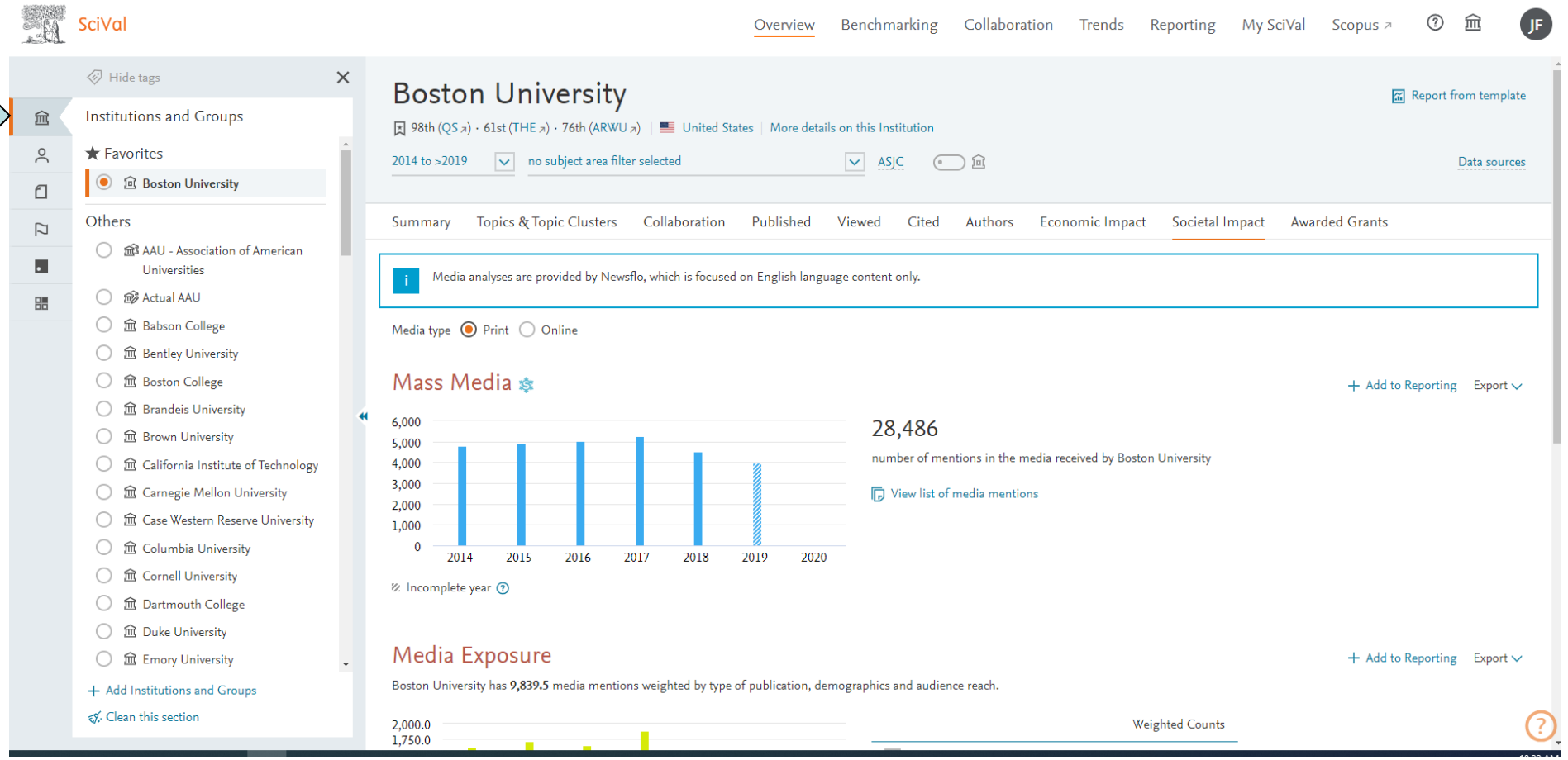
Media Mentions

- Media Exposure
  - Provides weighted counts of media mentions
  - “Internationally recognized” receives the highest weight (x1), “Local interest” the lowest (x.1)
  - “Regionally recognized” indicates global region (i.e. continental, like North American)

- Field Weighted Mass Media
  - Normalized by the expected number of media mentions based on publication year and discipline
  - Author mentions are assigned based on the common disciplines of the author’s work (discipline of at least 30% of their works)

Media Mentions

Limited to institutions and groups of institutions



Provides lists of media mentions

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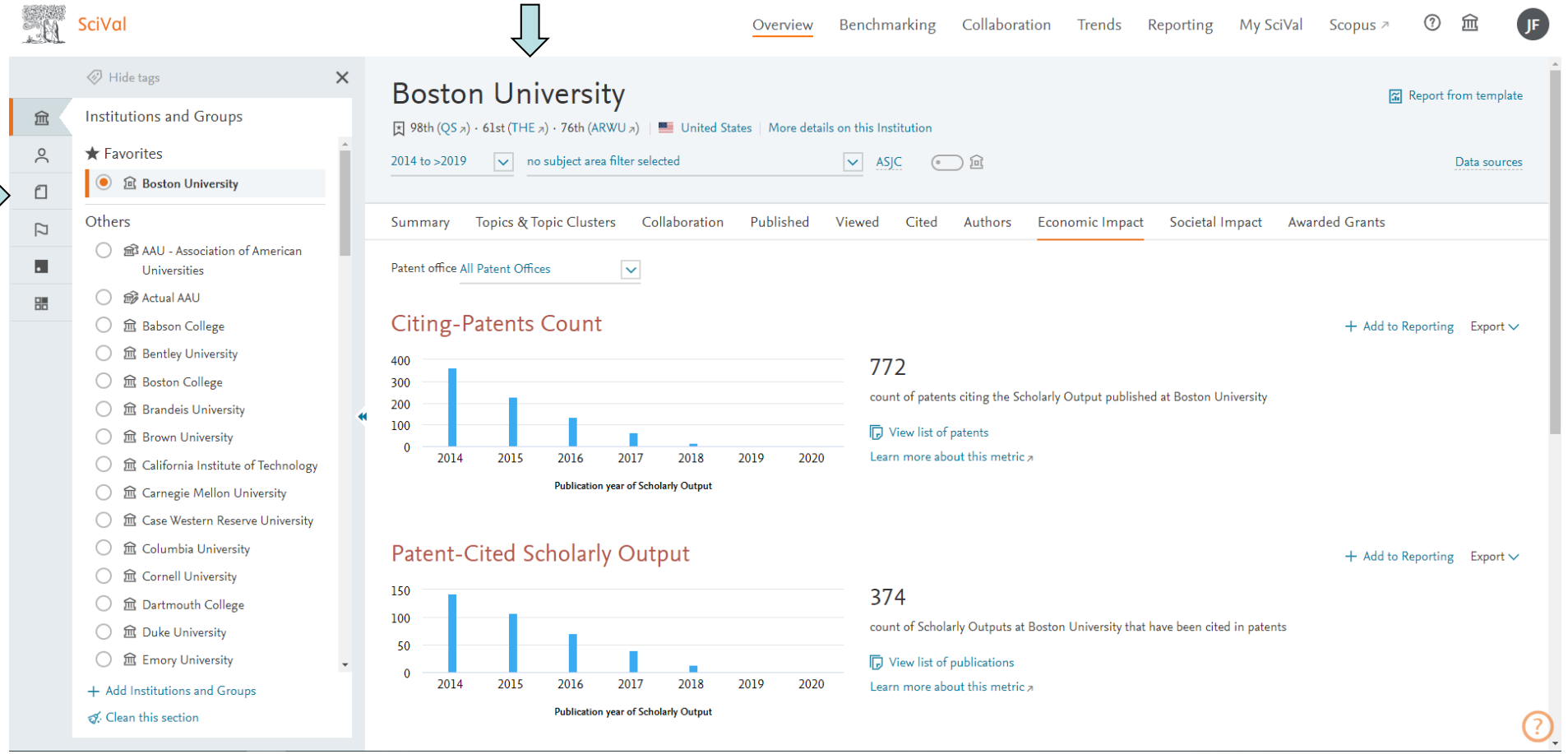
Patents

- SciVal contains information on patent citations under the “Economic Impact” tab
- Data is citation based and can be confusing (subtle variations each giving distinct information)
  - Citing-Patents Count: # of patents citing scholarly output (10 unique patents have cited BU work)
  - Patent-Cited Scholarly Output: # of scholarly outputs that have been cited in patents (25 BU papers have been cited by patents)
  - Patent-Citations Count: # of patent citations received by the selected entity (BU’s work has been cited by patents 500 times)
  - Patent-Citations per Scholarly Output: Average patent-citations per 1,000 scholarly outputs

Patents

Option to select of different patent offices

Allows selection of almost all entity types



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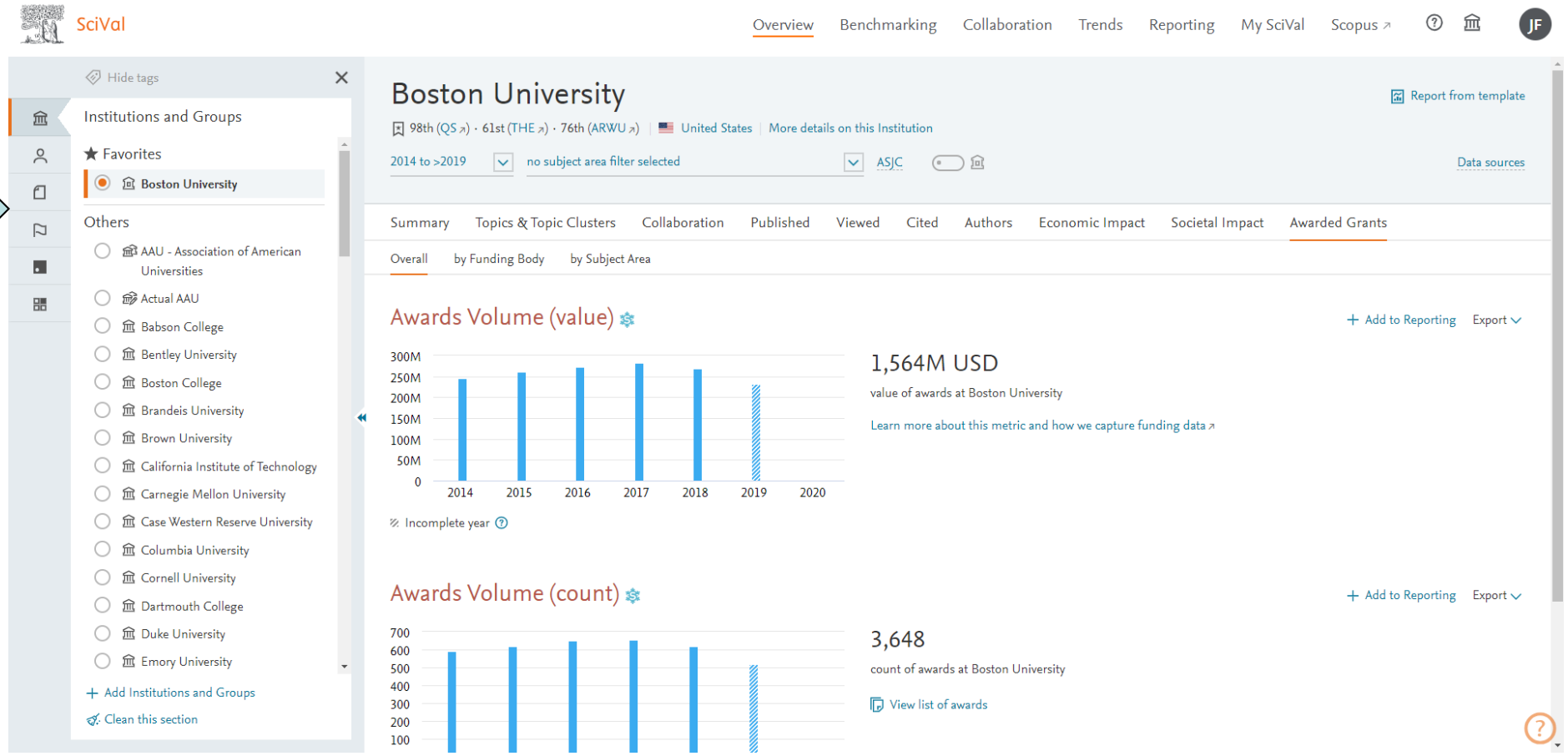
Funding Information

- SciVal indexes some funding information, but the information is VERY limited
- Found under the “Awarded Grants” tab
- SciVal funding information should be used with caution and only if it clearly fits the question at hand
  - Domestically only the NSF and NIH are included
  - Some funders from USA, GBR, AUS, CAN, EU, and JPN are included
  - A list of indexed funding sources can be found at: https://service.elsevier.com/app/answers/detail/a_id/18414/supporthub/scival/

Funding Information

Limited to institutions and groups of institutions



Can provide interesting visuals, but data is limited

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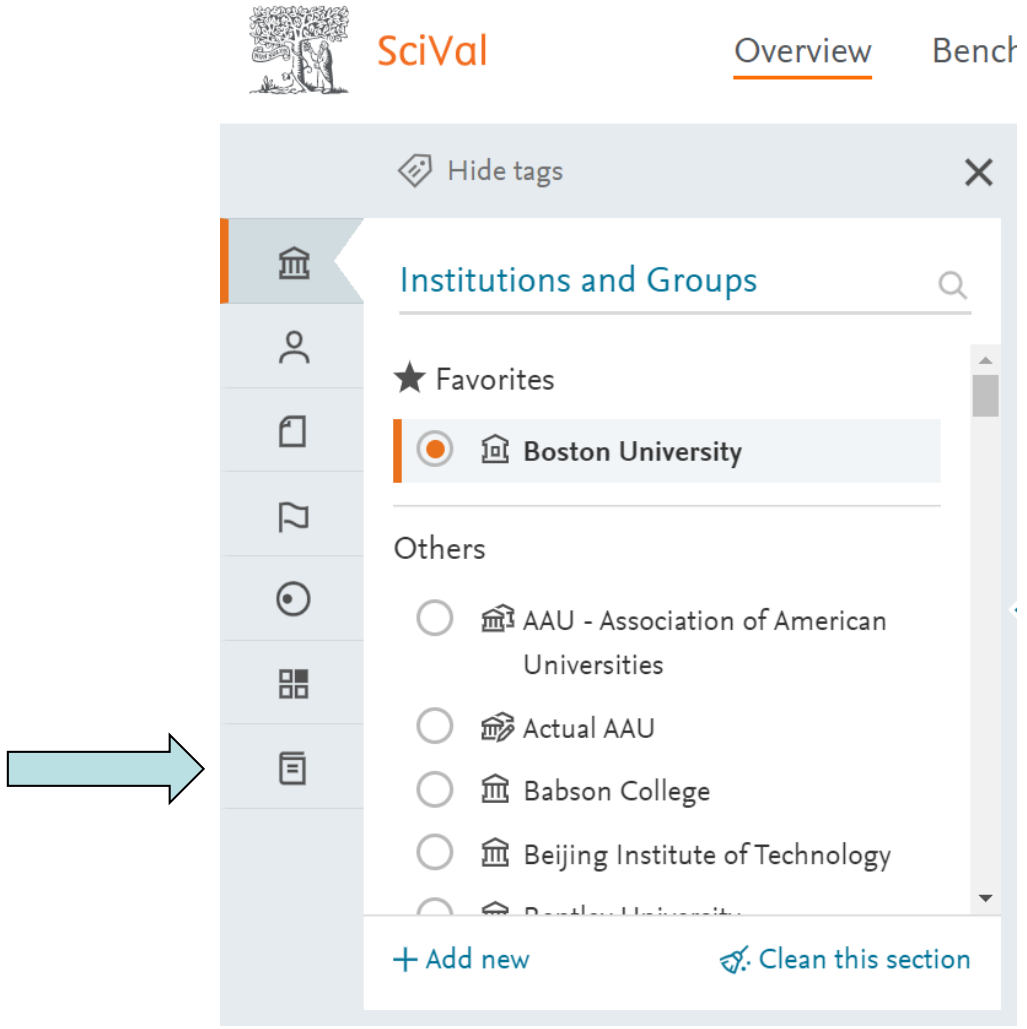
Question Break and Practice Exercise

- What print media sources (non-Boston University managed) are the top 2 sources of media mentions of Boston University?

New Features

- Scopus Sources
  - Allows you to search for metrics and generate publication sets based on specific sources (i.e. a specific journal)
  - Limited filtering options, but can be used to provide comparative data
  - More useful in creating a custom Research Area



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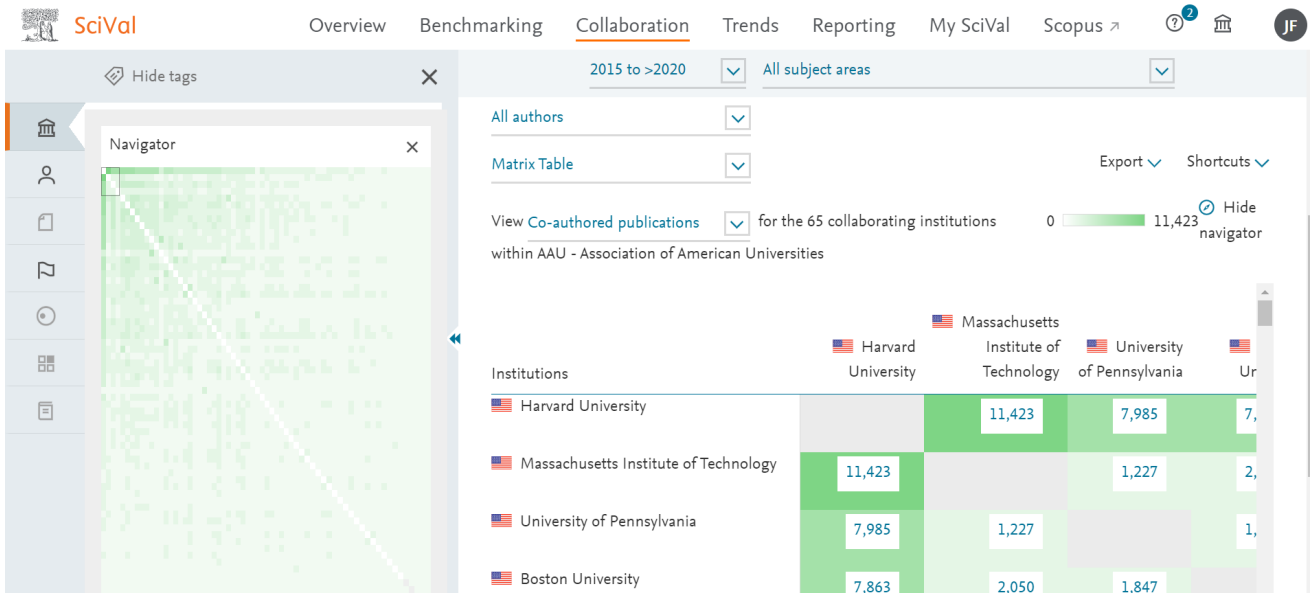
New Features

- Under the Collaborations Tab
- Provides a visual representation of collaborations
- Useful for quickly identifying frequent collaborators



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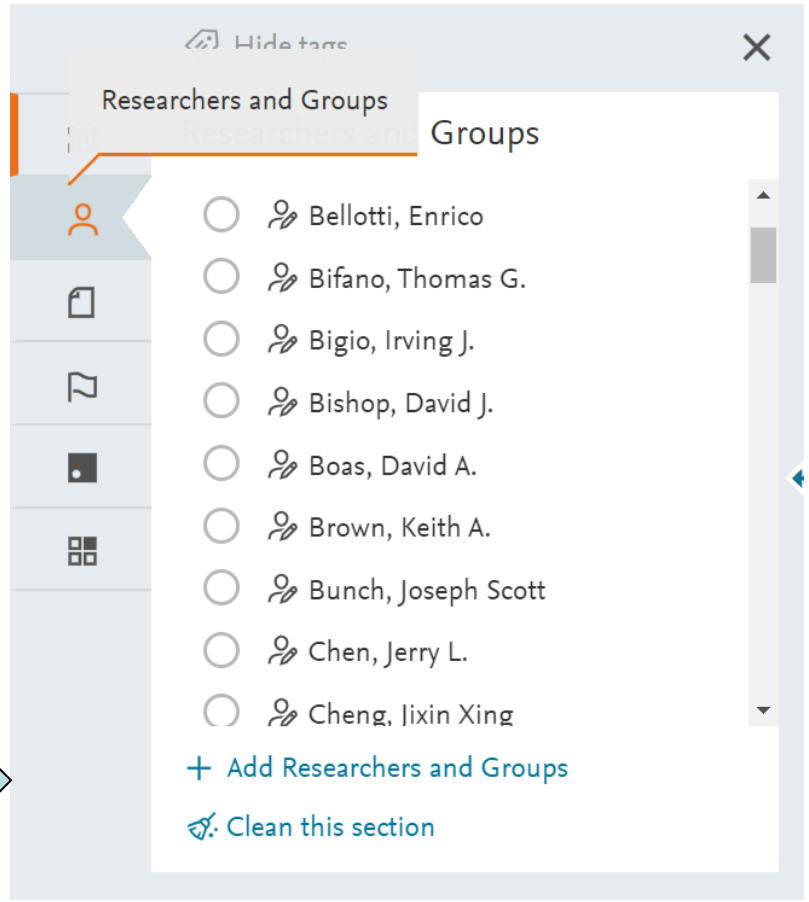
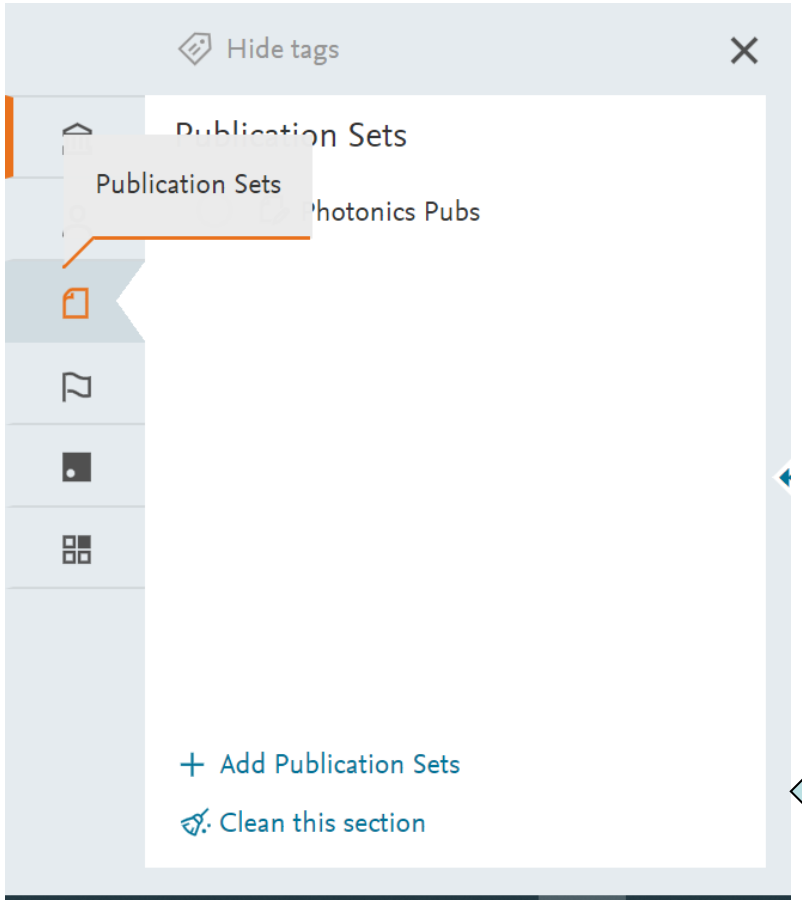
Building Groups and Departments

- Building groups and departments is a frequent use of SciVal
- SciVal has no built in department function
- 2 styles of group
  - 1. Define all members of the group individually, create a new group, add all members to group
    - Group metrics will reflect aggregate values (totals or averages, as appropriate based on the metric)
  - 2. Define a publication set, add all members of the group as authors
    - Metrics still reflect aggregate totals, but allow different functions in SciVal (primarily the Trends module)
- No ability to break out a list of individual values from a group

Building Groups and Departments



Define people first, then add group



Define people then use them as authors in the set

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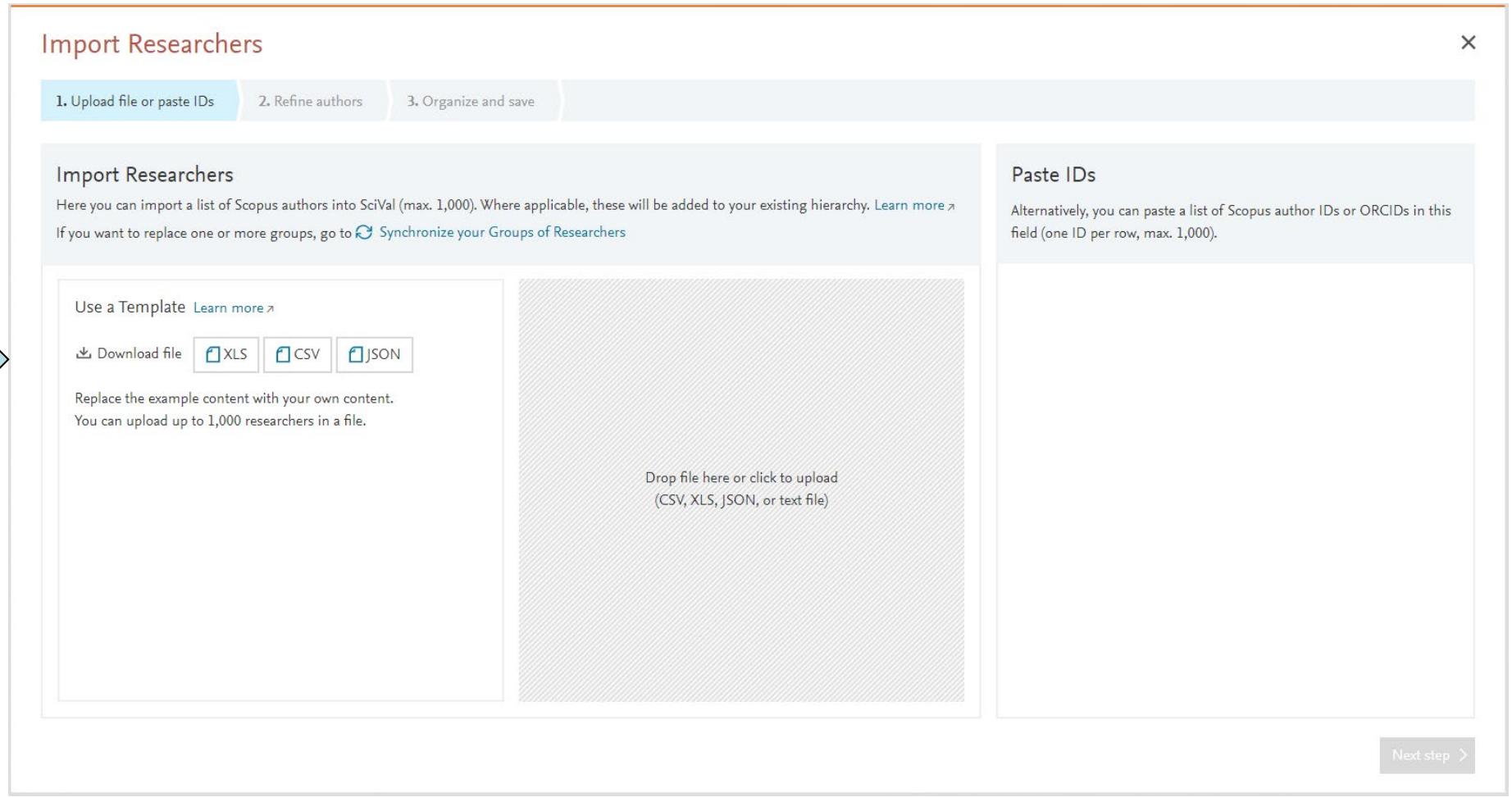
Building Groups and Departments

- Groups and hierarchies can also be directly imported using a spreadsheet
  - Found under “Import Researchers”
  - Example spreadsheets available for downloading
  - Correct spelling is essential for proper uploading
  - Process will give you an opportunity to refine results before finalizing

- This can help organize/structure but does not give access to any new metrics or values

Building Groups and Departments

Example files and templates



Editing Groups

- Once made, groups can be edited in the “My SciVal” tab
  - Find the entity you want to edit
  - Mouse over the entity and select the small pencil icon that appears
  - This opens a screen to edit the group
- Useful for groups of faculty (i.e. departments or centers) that may change over time

Data Suggestions and Cautions

- Counts
  - For Example: Citations, Scholarly Output, Authors
  - Counts provide unaltered data: Valuable, but requires knowledge of the units/people being compared
    - Vulnerable to distortion by time, age, discipline, institution size, and so on
  - Most useful when comparing within a discipline and with groups of the same/similar size
  - Potentially misleading when comparing across disciplines or different size groups

Data Suggestions and Cautions

- Calculated Metrics
  - For Example: Citations per Publication, FWCI
  - Calculated values provide a refined metric: Potentially more powerful, but the manipulation of data must be understood to fully/correctly utilize
    - Can correct for distortions, but must be placed in context
  - Very useful for normalized data, comparison of different size groups, comparison across disciplines
  - Potential misleading if used without context or if the nature of the metric is not understood

Comparison with Other Data Sources: Google Scholar

SciVal v.s. Google Scholar

- Google Scholar
  - Largest database, not curated (inaccuracies, predatory journals), policies in place that inflate metrics
  - Free to use
  - Author profiles require maintenance/cleaning to maintain accuracy in publications, many authors do not do this
  - Widely used thus frequently used as a comparison for other data platforms
  - No date limitations

Comparison with Other Data Sources: The h-index example

- H-index is a common measure of an entity's publication quality
  - An entity has an index of h if h of its papers have at least h citations each
- Measure is valuable but flawed
  - Time inflates h-index due to time effects on citations (leads to h5, h7, etc to correct for time effects)
  - Values varies by data source (Google Scholar number > SciVal number)

Comparison with Other Data Sources: Why SciVal/Scoups

- Curated database has advantages
  - Quality sources/no predatory sources (May not apply to BU faculty much)
  - Disambiguation taken care of in curation (consistency in decision making)
- No profiles to maintain
- Scopus is used by THE and QS in the world university rankings

Practice: SciVal vs Google Scholar Comparison

- Compare Gigi Luk (McGill University) and Charles A Nelson (Harvard) in SciVal and Google Scholar. Note various metrics like h-index, academic age, and publication counts/lists (especially the older publications on the lists)

- Rank the following institution by funding received from 2009 to 2018: Seoul National University, Boston University, University of California Berkeley

Practice

- Rank the following institution by funding received from 2009 to 2018: Seoul National University, Boston University, University of California Berkeley