

Biblioshiny

bibliometrix for no coders

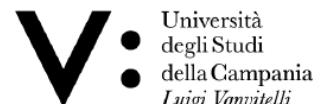


MASSIMO ARIA

FULL PROFESSOR IN STATISTICS FOR SOCIAL SCIENCES – UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

CORRADO CUCCURULLO

FULL PROFESSOR IN MANAGEMENT AND ECONOMICS – UNIVERSITÀ DEGLI STUDI DELLA CAMPANIA “LUIGI VANVITELLI”



Università
degli Studi
della Campania
Luigi Vanvitelli

bibliometrix: An R-Tool for Comprehensive Science Mapping Analysis

Aria, M., & Cuccurullo, C. (2017). *bibliometrix: An R-tool for comprehensive science mapping analysis*. *Journal of Informetrics*.

bibliometrix is an open-source tool for executing a comprehensive science mapping analysis of scientific literature

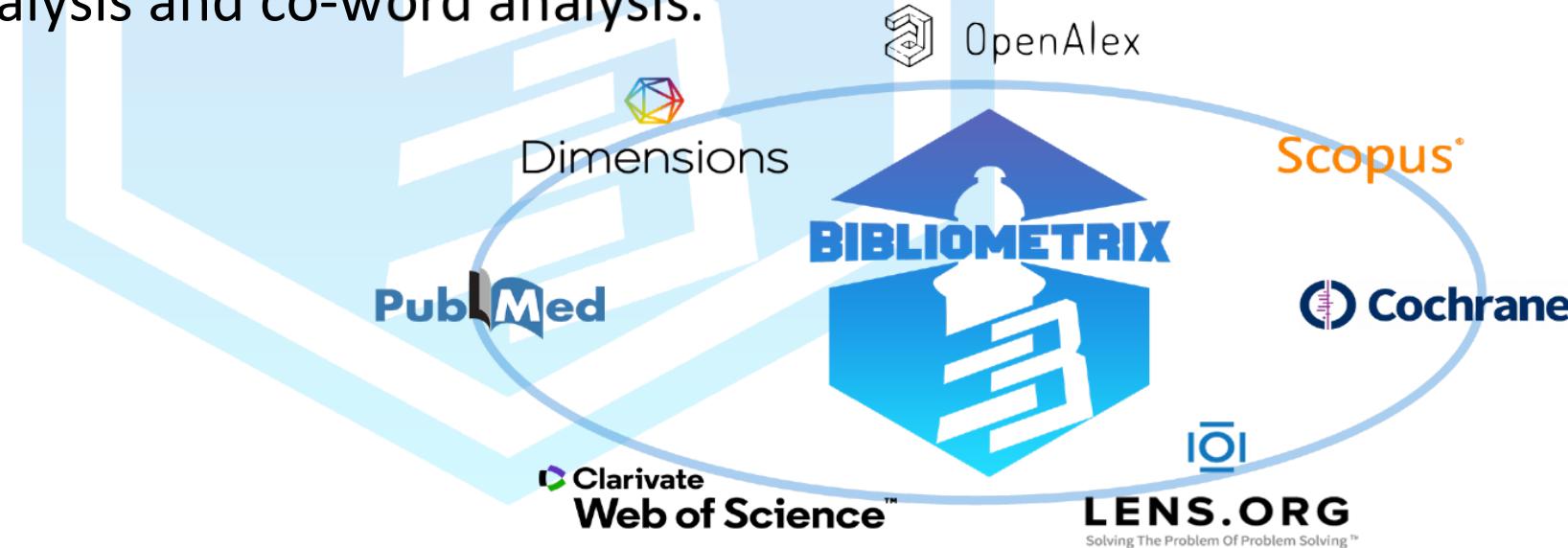
It was programmed in R language to be flexible and facilitate integration with other statistical and graphical packages. Indeed, bibliometrics is a constantly changing science and bibliometrix has the flexibility to be quickly upgraded and integrated

Its development can address a large and active community of developers formed by prominent researchers



bibliometrix

bibliometrix provides various routines for importing bibliographic data from SCOPUS, Clarivate Analytics' Web of Science, Dimensions, The Lens, PubMed and Cochrane databases, performing bibliometric analysis and building data matrices for co-citation, coupling, scientific collaboration analysis and co-word analysis.



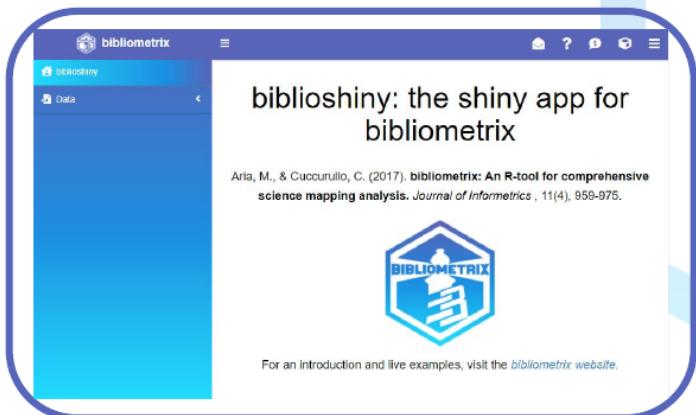
Biblioshiny App

- Biblioshiny is a web-base app included in the bibliometrix package
- Biblioshiny allows no coders to use bibliometrix
- It is developed in the Shiny environment
- Just install and load bibliometrix, library(bibliometrix) and type biblioshiny() and the game starts!

Biblioshiny: how it works

Biblioshiny combines the functionality of **bibliometrix** package with the ease of use of web apps using the Shiny package environment

biblioshiny web app



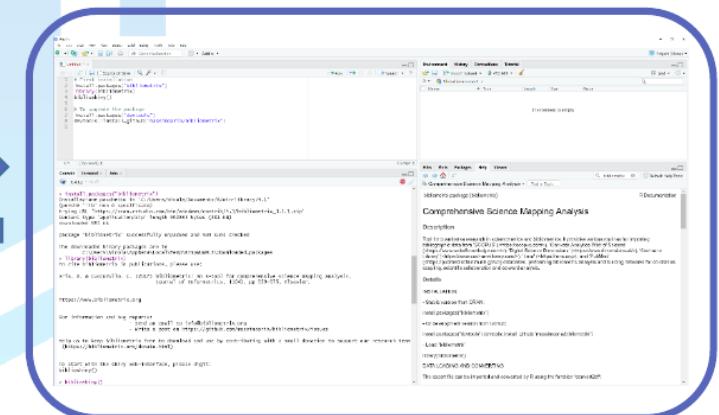
Shiny
dashboard
package



bibliometrix
package



R environment



What do you see!

What it do!



Bibliographic database

- A **bibliographic database** is a database of bibliographic records, an organized digital collection of references to published scientific literature, including journal articles, conference proceedings, patents, books, etc.
- They generally contain very rich subject descriptions in the form of **keywords, subject classification terms, or abstracts**.
- Information related to a **bibliographic record** are named **bibliographic meta-data**

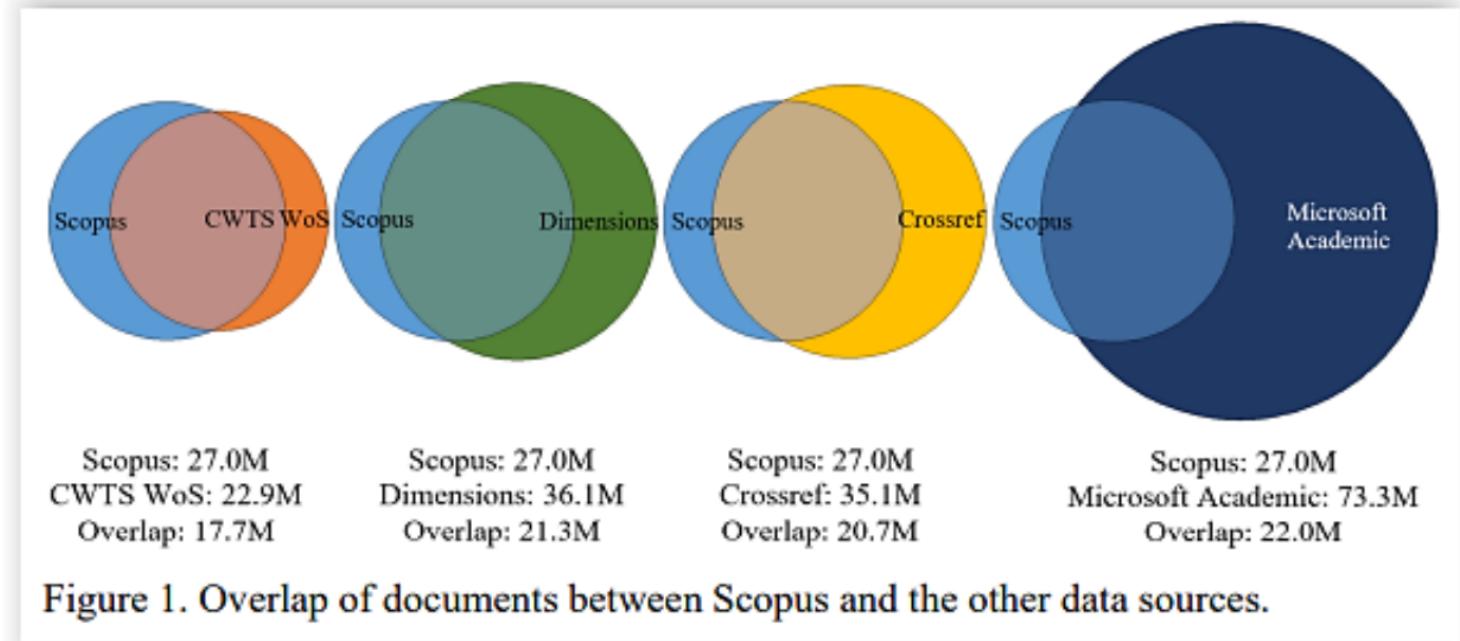
Main bibliographic databases

- Multidisciplinary:

- Microsoft Academic
- CrossRef
- Dimensions
- OpenAlexR
- **Web of Science**
- **Scopus**
- ...

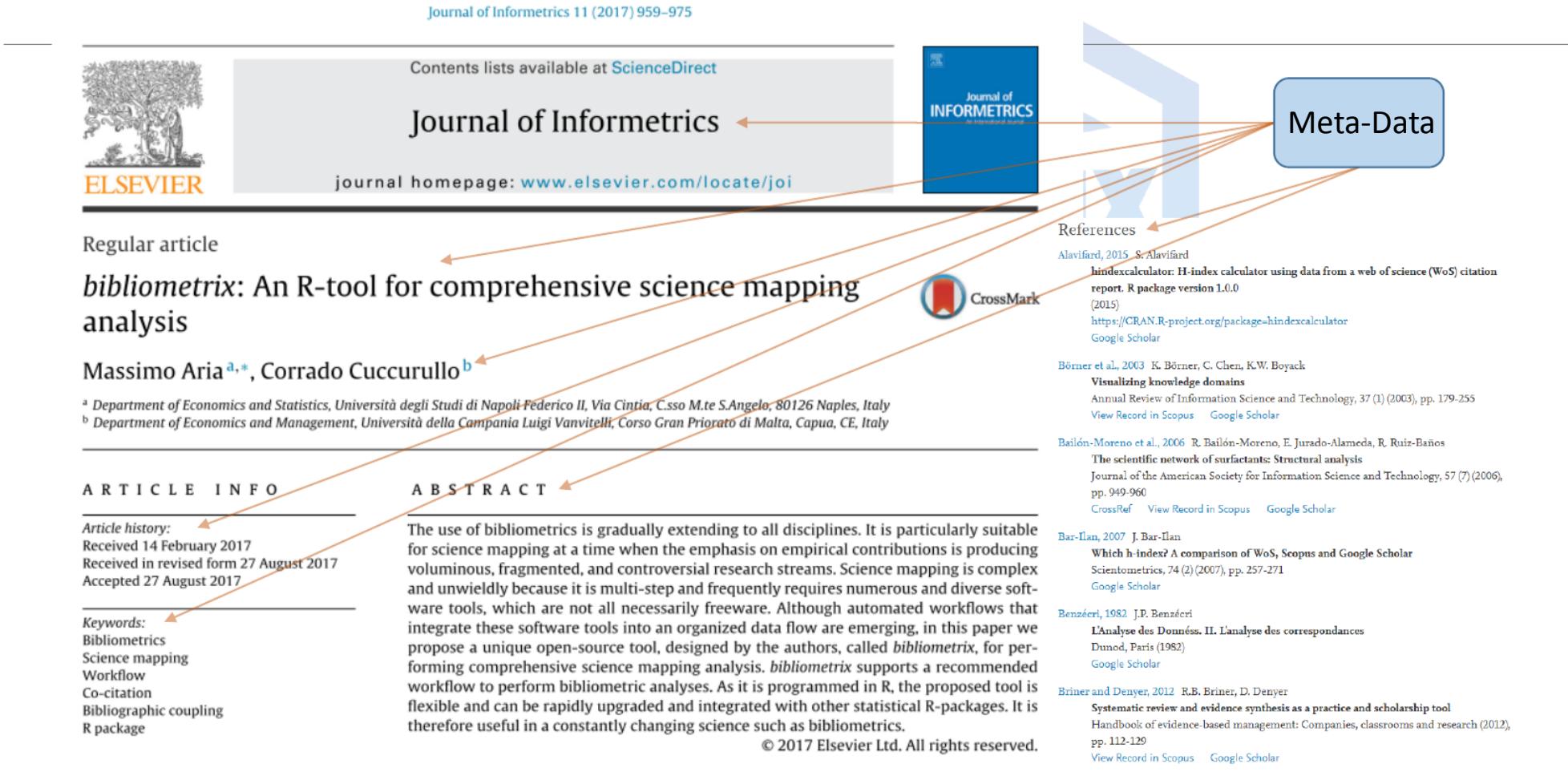
- Specialized:

- ArXiv
- Cochrane
- EconBiz
- IEEE Xplore
- PubMed
- ...



(Source: Visser, M., van Eck, N. J., & Waltman, L. (2021). Large-scale comparison of bibliographic data sources: Scopus, Web of Science, Dimensions, Crossref, and Microsoft Academic. Quantitative Science Studies, 2(1), 20-41.

An example about document meta-data



Dataset (analyzed by biblioshiny)

Supported databases:

- Web of Science (WoS)
- Scopus
- Dimensions
- Lens.org
- PubMed
- Cochrane
- Openalex

File formats:

- Plain text
- BibTeX
- CSV/xlsx
- CIW
- zip (Multiple files importing)
- Rdata (bibliometrix file)

An example of WoS plain text export format

Main meta-data fields:

- AU Authors
- AF Authors' full name
- TI Title
- SO Document source (eq Journal name)
- DT Document type
- DE Authors' keywords
- ID Keyword Plus (assigned by WoS machine learning algorithm)
- AB Abstract
- C1 Authors' affiliations
- RP Corresponding author' affiliation
- CR Cited references
- TC Total citations
- PY Publication year
- DI DOI
- SC Subject category
- ...

For a complete list of field tags see

http://www.bibliometrix.org/documents/Field_Tags_bibliometrix.pdf

Bibliographic record of: *Aria & Cuccurullo, 2017, Journal of Informetrics*

```
1 PT J
2 AU Aria, M
3   Cuccurullo, C
4 AF Aria, Massimo
5   Cuccurullo, Corrado
6 TI bibliometrix: An R-tool for comprehensive science mapping analysis
7 SO JOURNAL OF INFORMETRICS
8 LA English
9 DT Article
10 DE Bibliometrics; Science mapping; Workflow; Co-citation; Bibliographic
11 coupling; R package
12 ID INFORMATION SCIENCE; INTELLECTUAL STRUCTURE; SCIENTIFIC LITERATURE;
13 COCITATION ANALYSIS; CITATION NETWORKS; AUTHOR COCITATION; KNOWLEDGE
14 DOMAINS; COUPLING ANALYSIS; SOFTWARE TOOL; DOCUMENTS
15 AB The use of bibliometrics is gradually extending to all disciplines. It is particularly suitable for scie
16 CI [Aria, Massimo] Univ Napoli Federico II, Dept Econ & Stat, Via Cintia, I-80126 Naples, Italy.
17 [Cuccurullo, Corrado] Univ Campania Luigi Vanvitelli, Dept Econ & Management, Capua, CE, Italy.
18 RP Aria, M (reprint author), Univ Napoli Federico II, Dept Econ & Stat, Via Cintia, I-80126 Naples, Italy.
19 EM aria@unina.it; corrado.cuccurullo@unicampania.it
20 RI Aria, Massimo/O-7983-2015
21 OI Aria, Massimo/0000-0002-8517-9411
22 CR Alavifard S., 2015, HINDEXCALCULATOR H I
23 Bailon-Moreno R, 2006, J AM SOC INF SCI TEC, V57, P949, DOI 10.1002/asi.20362
24 Bar-Ilan J, 2008, SCIENTOMETRICS, V74, P257, DOI 10.1007/s11192-008-0216-y
25 Benzecri J. P., 1982, ANAL DONNESS ANAL CO
2624 Borner K, 2003, ANNU REV INFORM SCI, V37, P179, DOI 10.1002/aris.1440370106
27 Briner R., 2012, HDB EVIDENCE BASED M, P112, DOI DOI 10.1093/OXFORDH/9780199763986.013.0007
28 BROADUS RN, 1987, SCIENTOMETRICS, V12, P373, DOI 10.1007/BF02016680
29 CALLON M, 1983, SOC SCI INFORM, V22, P191, DOI 10.1177/053901883022002003
30 Chen CM, 2006, J AM SOC INF SCI TEC, V57, P359, DOI 10.1002/asi.20317
31 Cobo MJ, 2012, J AM SOC INF SCI TEC, V63, P1609, DOI 10.1002/asi.22688
32 Cobo MJ, 2011, J INFORMATR, V5, P146, DOI 10.1016/j.joi.2010.10.002
33 Cobo M. J., 2011, J AM SOC INFORM SCI
34 Crane D., 1972, INVISIBLE COLL DIFFU
...
...
84 Yan EJ, 2012, J AM SOC INF SCI TEC, V63, P1313, DOI 10.1002/asi.22680
85 Yang KM, 2006, P ASIST ANNU MEET, V43, P1, DOI DOI 10.1002/METT.14504301185
86 Yang SL, 2016, J INFORMATR, V10, P132, DOI 10.1016/j.joi.2015.12.003
87 Zhao DZ, 2008, J AM SOC INF SCI TEC, V59, P2070, DOI 10.1002/asi.20910
88 Zupic I, 2015, ORGAN RES METHODS, V18, P429, DOI 10.1177/1094428114562629
89 NR 67
90 TC 17
91 Z9 17
92 U1 23
93 U2 73
94 PU ELSEVIER SCIENCE BV
95 PI AMSTERDAM
96 PA PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
97 SI 1751-1577
98 EI 1875-5879
99 J9 J INFORMATR
100 JI J. Informatr.
101 PD NOV
102 PY 2017
103 VL 11
104 IS 4
105 BP 959
106 EP 975
107 DI 10.1016/j.joi.2017.08.007
108 PG 17
109 WC Computer Science, Interdisciplinary Applications; Information Science &
110 Library Science
111 SC Computer Science; Information Science & Library Science
112 GA FQ0DR
113 UT WOS:000418020600003
114 DA 2019-04-01
115 ER
116
117 EF
```

An example of BibTeX export formats

Web of Science

```
1 @article{IST-000418020600003,
2   Author = {Aria, Massimo and Cuccurullo, Corrado},
3   Title = {BIBLIO-METRIX: An R-tool for comprehensive science mapping analysis},
4   Journal = {JOURNAL OF INFORMATRICS},
5   Year = {2017},
6   Volume = {11(1)},
7   Number = {1(4)},
8   Pages = {959-975},
9   Month = {NOV},
10  Abstract = {The use of bibliometrics is gradually extending to all disciplines. It is particularly suitable for science mapping at a time when the emphasis on empirical contributions is producing voluminous, fragmented, and cross-disciplinary research streams. Science mapping is complex and unwieldy because it is multi-step and frequently requires numerous and diverse software tools, which are not all necessarily friendly. Although automated workflows that integrate these software tools into an organized data flow are emerging, in this paper we present a unique open-source tool, designed by the authors, called bibliometrix, for performing comprehensive science mapping analysis. bibliometrix supports a recommended workflow to perform bibliometric analyses. As it is programmed in R, the proposed tool is flexible and can be rapidly upgraded and integrated with other statistical R-packages. It is therefore useful in a constantly changing science such as bibliometrics. (c) 2017 Elsevier Ltd. All rights reserved.}),
25  Publisher = {ELSEVIER SCIENCE BV},
26  Address = {PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS}),
27  Type = {Article},
28  Language = {English},
29  Affiliation = {Aria, M (Reprint Author), Univ Napoli Federico II, Dept Econ & Stat, Via Cintia, I-80126 Naples, Italy.
30    Aria, Massimo, Univ Napoli Federico II, Dept Econ & Stat, Via Cintia, I-80126 Naples, Italy.
31    Cuccurullo, Corrado, Univ Campania Luigi Vanvitelli, Dept Econ & Management, Capua, CE, Italy.}),
32  DOI = {10.1016/j.joi.2017.08.007},
33  ISSN = {1475-4577},
34  EISSN = {1875-5079},
35  Keywords = {Bibliometrics; Science mapping; Workflow; Co-citation; Bibliographic coupling; R package},
36  Keywords-Plus = {INFORMATION-SCIENCE; INTELLECTUAL STRUCTURE; SCIENTIFIC LITERATURE; CITATION ANALYSIS; CITATION NETWORKS; AUTHOR CITOCITATION; KNOWLEDGE DOMAINS; COUPLING ANALYSIS; SOFTWARE TOOL; DOCUMENTS},
37  Research-Areas = {Computer Science; Information Science & Library Science},
38  Web-of-Science-Categories = {Computer Science, Interdisciplinary Applications; Information Science & Library Science},
39  Author-Email = {aria@unina.it
40    corrado.cuccurullo@unicampania.it},
41  ResearcherID-Numbers = {Aria, Massimo/C-7983-2015),
42  ORCID-Numbers = {Aria, Massimo/0000-0002-8517-9411},
43  Cited-References = {Alavifard S., 2015, HINDEXCALCULATOR H I
44    Balon-Moreno R, 2006, J AM SOC INF SCI TEC, V57, P179, DOI 10.1002/asl.20362.
45    Bar-Ilan J, 2008, SCIENTOMETRICS, V74, P257, DOI 10.1007/s11119-008-0216-y.
46    Benzerai J. P., 1982, ANAL DONNEES ANAL CO.
47    Bornet R, 2003, ANNU REV INFORM SCI, V37, P179, DOI 10.1002/aris.1440370106.
48    Briner R, 2012, EVIDENCE BASED M, P112, DOI DOI 10.1093/OXFORDHHS/9780199763986.013.0007.
49    BROADUS RN, 1987, SCIENTOMETRICS, V12, P373, DOI 10.1007/BF02016680.
50    CALLON M, 1983, SOC SCI INFORM, V22, P191, DOI 10.1177/05390183022002003.
51    Chen CM, 2006, J AM SOC INF SCI TEC, V57, P359, DOI 10.1002/asl.20317.
52    Cobo MJ, 2012, J AM SOC INF SCI TEC, V63, P1699, DOI 10.1002/asl.22688.
53    ...
54    van Eck NJ, 2009, J AM SOC INF SCI TEC, V60, P1635, DOI 10.1002/asl.21075.
55    Waltman L, 2016, J INFORMETR, V10, P365, DOI 10.1016/j.joi.2016.02.001.
56    Waltman L, 2010, J INFORMETR, V4, P629, DOI 10.1016/j.joi.2010.07.002.
57    WHETSTINE RD, 1991, J AM SOC INF SCI TEC, V42, P163, DOI 10.1002/asl.22660.
58    WHETSTINE RD, 1998, J AM SOC INF SCI TEC, V49, P127, DOI 10.1002/(SICI)1097-4571(19980401)49:4<327::AID-ASI4>3.0.CO;2-W.
59    Yan EU, 2012, J AM SOC INF SCI TEC, V63, P1313, DOI 10.1002/asl.22690.
60    Yang KM, 2006, P ASIST ANN MEET, V43, P1 DOI 10.1002/MSEET.14504301185.
61    Yang SL, 2016, J INFORMETR, V10, P132, DOI 10.1016/j.joi.2015.12.003.
62    Zhao DZ, 2008, J AM SOC INF SCI TEC, V59, P2070, DOI 10.1002/asl.20910.
63    Zupic I., 2015, CRITICAL METHODS, v10, n425, doi 10.1177/1094420114562629.}),
64  Number-of-Cited-References = {671},
65  Times-Cited = {171},
66  Usage-Count-Last-180-days = {231},
67  Usage-Count-Since-2012 = {731},
68  Journal-ISO = {J. Informatr.},
69  Doc-Delivery-Number = {11000887},
70  Unique-ID = {IST-0004180206000031},
71  DA = {2019-04-01},
```

Scopus

```
1 Scopus
2 EXPORT_DATE: 1 April 2019
3
4 @ARTICLE{Aria, M. and Cuccurullo, C.I.,
5   title=(BIBLIO-METRIX: An R-tool for comprehensive science mapping analysis),
6   journal=(Journal of Informatics),
7   year=(2017),
8   volume=(11),
9   number=(4),
10  pages=(959-975),
11  doi=(10.1016/j.joi.2017.08.007),
12  noted_by=(31),
13  url=(https://www.scopus.com/inward/citedby.uri?eid=2-s2.0-85020213621&doi=10.1016/j.joi.2017.08.007&partnerId=40imds277ha6o),
14  affiliation=(Department of Economics and Statistics, Universita degli Studi di Napoli Federico II, Via Cintia, C.sso M.te S.Anne abstract=(The use of bibliometrics is gradually extending to all disciplines. It is particularly suitable for science mapping & author keywords=(Bibliographic coupling, Bibliometrics, Co-citation, R package, Science mapping, Workflow), references=(Alavifard, S., hindexcalculator: H-index calculator using data from a web of science (WoS) citation report, R pack correspondence_address=(Aria, M., Department of Economics and Statistics, Universita degli Studi di Napoli Federico II, Via Cintia, C.sso M.te S.Anne publisher=(Elsevier Ltd), issn=(1751-5777), language=(English), abbrev_source=(J. Inf.), document_type=(Article), source=(Scopus),
```

Very different!
(both in terms of content and string format)

The merging of WoS and Scopus collections
is a very difficult task
(no software currently allows this!)

Some remarks about the DBs and the data formats

Web of Science is preferable to other databases in terms of data quality

- In Scopus, the reference elements mentioned are not standardized -> they must be combined
- In Dimensions, the algorithm that classifies search areas is not efficient

In Web of Science, plain text format is preferable to others

- Scopus BibTeX format and Dimensions CSV format do not allow exporting some metadata

Some limits of the DBs

Web of Science:

- Permits to export only 500 records at a time but allows to split the selected collection into multiple downloads (e.g. from 1 to 500, 501 to 1000, 1001 to 1500,, from 5001 to 5500, etc.)
- It is not possible to use API to directly search and export meta-data (using the Italian academic subscription)

Scopus:

- Scopus permits to export 2,000 records at a time but does not allow to split the selected collection into multiple downloads (It is necessary to define a multiple search strategy selecting up to 2,000 documents at a time!)
- It allows scholars to use API to directly search and export meta-data in R environment (e.g. **rscopus** package)

Dimensions:

- Dimensions allows you to export 50,000 records at a time but does not allow you to split the selected collection into multiple downloads (It is necessary to define a multiple search strategy by selecting up to 50,000 documents at a time!)
- It allows scholars to use the API to search and export metadata in R environment (e.g. **dimensionsR** package)



Querying, Selecting, Exporting

“Querying” a bibliographic database

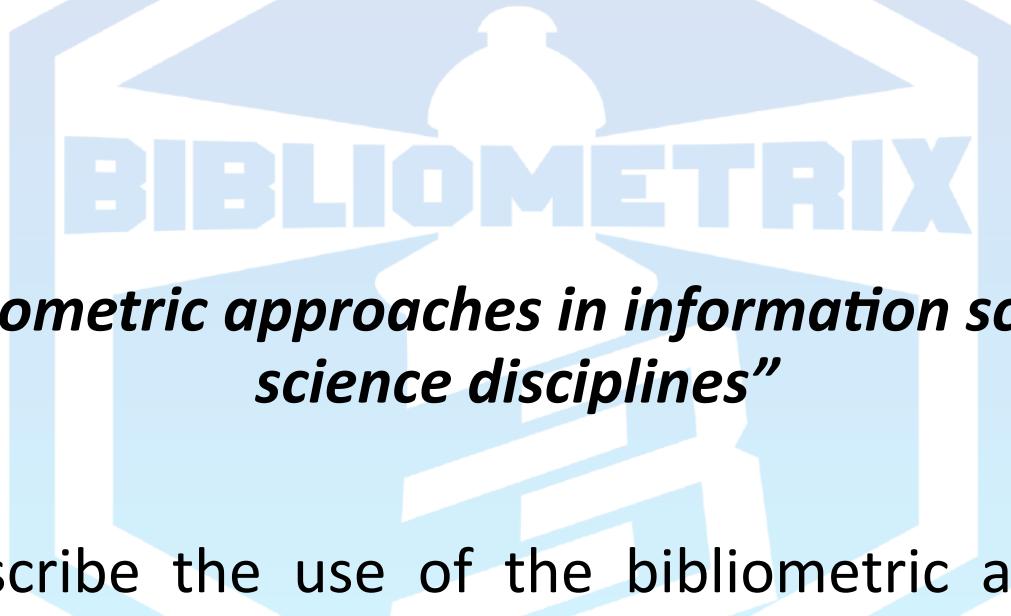
Data can be extracted through a **query**

A query is a combination of terms linked by Boolean operators

A query defines a search strategy by (search fields):

- Keywords
- Titles
- Abstracts
- Authors
- Journals
- Affiliations
- ...

An example using the Web of Science database



“The use of bibliometric approaches in information science and library science disciplines”

We want to describe the use of the bibliometric approaches in the *information science and library science* scientific literature

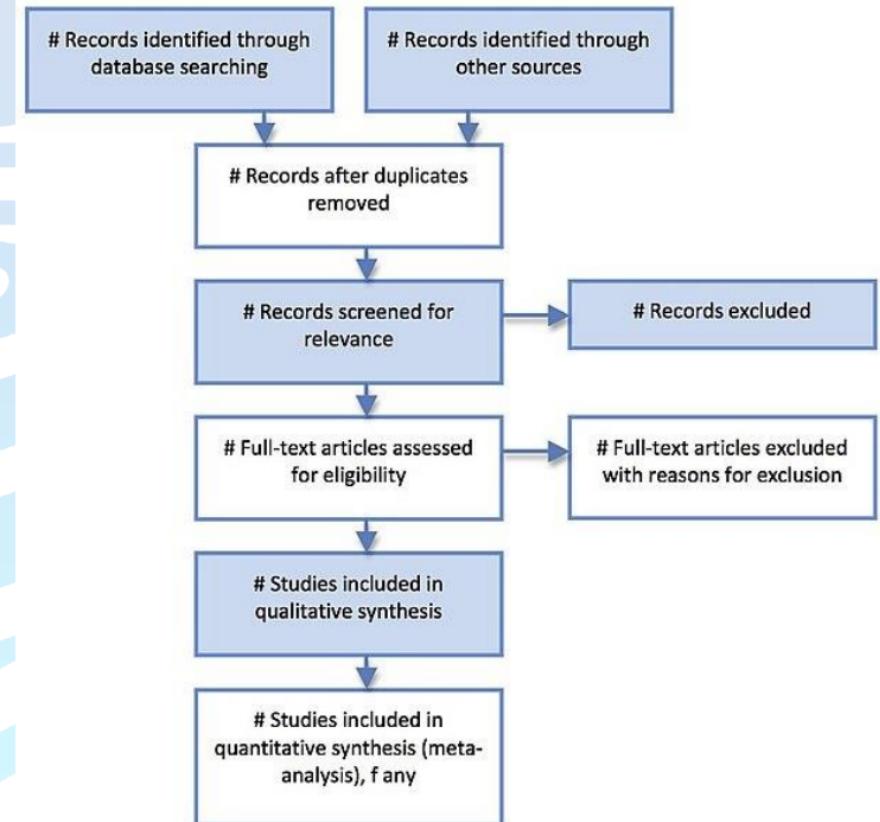
Let's start with the example:

How to define a query?

- 1) We need to choose the combination of terms which identify the scientific literature that used bibliometric approaches
- 2) We need to limit research in the area of *information science and library science* disciplines
- 3) We need to limit the timespan
- 4) We need to choose what kind of documents to analyze

PRISMA diagram

- PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses
- It is an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses
- The aim of the PRISMA Statement is to help authors improve the reporting of systematic reviews and meta-analyses
- PRISMA may also be useful for critical appraisal of published systematic reviews, although it is not a quality assessment instrument to gauge the quality of a systematic review



Search strategy

1. Select the WoS sub-DBs: **SCI** (*Science Citation Index*), **SSCI** (*Social Science Citation Index*), and **ESCI**(*Emerging Sources Citation Index*)
2. Select all the documents that contain the words “**bibliometric***” or “**science map***” in the title, abstract or in the keyword list
3. Select only documents included in the subject category *Information Science Library Science*
4. Select the timespan: **all complete years**
5. Select document types: *Articles or Proceedings Papers or Review Articles*
6. Select only documents written in **English**

Select the WoS sub-DBs:

The screenshot shows the Web of Science homepage with a purple header and a white search interface. The search interface includes tabs for DOCUMENTS and RESEARCHERS, and a search bar set to 'Web of Science Core Collection'. Below the search bar, there are filters for 'DOCUMENTS', 'CITED REFERENCES', and 'STRUCTURE', along with dropdowns for 'All Fields' and 'Example: liver'.

On the right, a sidebar lists sub-databases with checkboxes. Three checkboxes are checked: 'Science Citation Index Expanded (SCI-EXPANDED)--1985-present', 'Social Sciences Citation Index (SSCI)--1985-present', and 'Emerging Sources Citation Index (ESCI)--2005-present'. Blue arrows point from the text labels on the right to these checked boxes. A question mark icon with the number '39' is in the bottom right corner of the sidebar.

Labels with blue arrows pointing to the checked boxes:

- SCI - EXPANDED (Science Citation Index)
- SSCI (Social Science Citation Index)
- ESCI (Emerging Sources Citation Index)

Select all the documents that contain the words “bibliometric*” or “science map*” in the topic

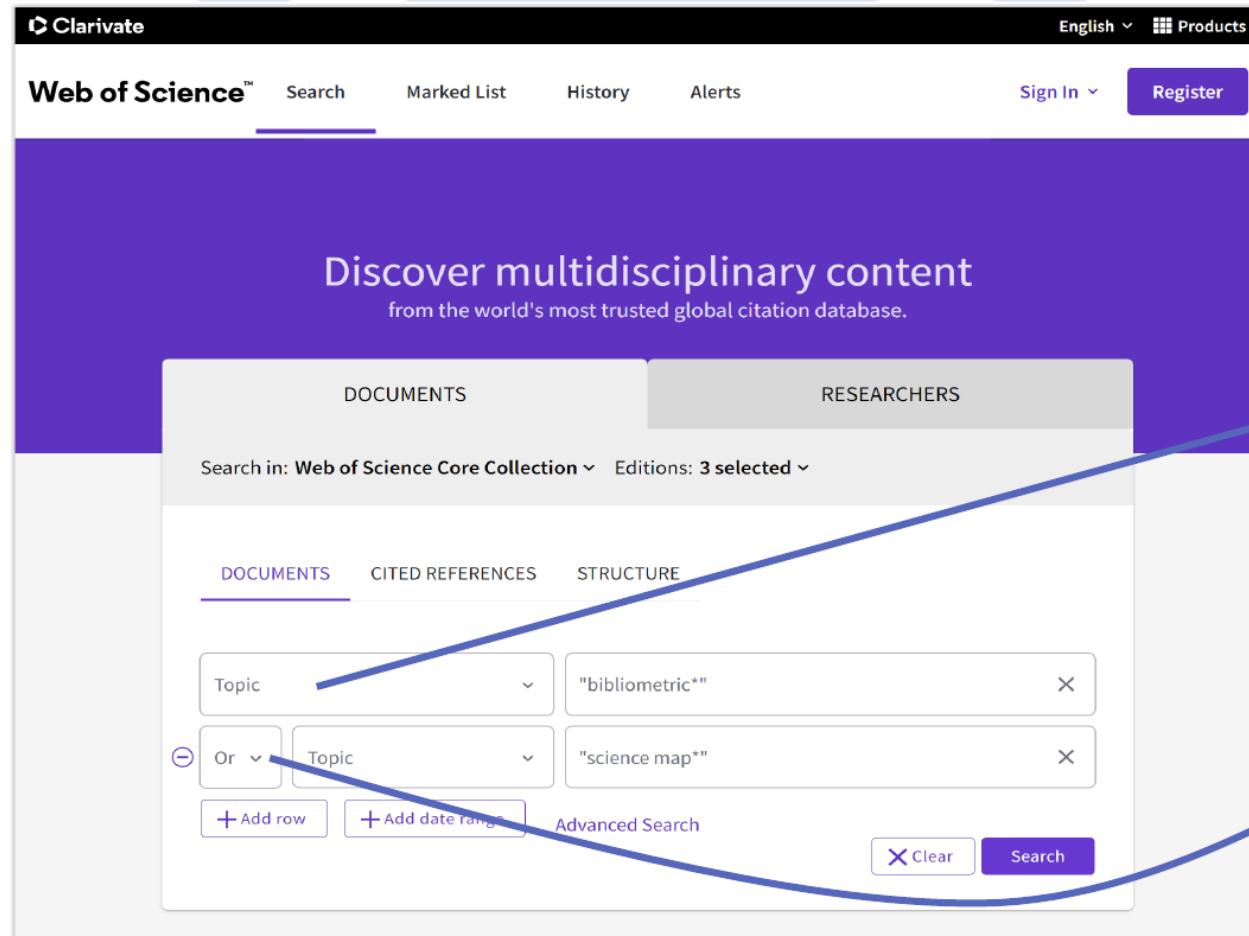
**“*” is a jolly symbol
it means any character**

e.g. bibliometric*:

- Bibliometric
- Bibliometrics
- Etc.

e.g. science map*:

- Science map
- Science maps
- Science mapping



Search field:
“title”
“topic”
“keywords”
...

Boolean operators:
“OR”
“AND”
“NOT”

Results for "bibliometric*" (Topic) OR "science map*" (Topic)

Query result:
20,248 documents

Clarivate English Products

Web of Science™ Search Marked List History Alerts Sign In Register

Search > Results for "bibliometric*" (Topic) OR "science map*" (Topic)

20,248 results from Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Emerging Sources Citation Index (ESCI):

"bibliometric*" (Topic) or "science map*" (Topic) Analyze Results Citation Report Create Alert

Copy query link Publications You may also like...

Refine results

Search within results for...

Quick Filters

<input type="checkbox"/> Highly Cited Papers	247
<input type="checkbox"/> Hot Papers	9
<input type="checkbox"/> Review Articles	3,695
<input type="checkbox"/> Early Access	742
<input type="checkbox"/> Open Access	9,016
<input type="checkbox"/> Associated Data	136

0/20,248 Add To Marked List Export Sort by: Relevance 1 of 405

1 FABRICO/CIENCIA: a Linked Data environment for Science mapping
da Rocha, RP
Dec 2012 | EM QUESTAO 18 (3), pp.281-297 19 References
This work investigates contributions of Open Archives, Web 2.0 and Linked Data for Science mapping. It describes the Fabrico/Ciencia, a web application which combines resources of Open Archives, Web 2.0 and Lin ... Show more

Find It Related records ?

WoS categories:

Information Science Library Science

**Refine by
WoS category:
*Information
Science Library
Science***

**Results:
5,390
documents**

Refine by Web of Science Categories

Search for Web of Science Categories 

Select all Results count ▾

<input checked="" type="checkbox"/> Information Science Library Science	5,390	<input type="checkbox"/> Political Science	86	<input type="checkbox"/> Imaging Science Photographic Technology	30
<input type="checkbox"/> Computer Science Interdisciplinary Applications	2,521	<input type="checkbox"/> Biology	84	<input type="checkbox"/> Social Sciences Biomedical	30
<input type="checkbox"/> Environmental Sciences	1,542	<input type="checkbox"/> Dermatology	84	<input type="checkbox"/> Geriatrics Gerontology	29
<input type="checkbox"/> Management	1,391	<input type="checkbox"/> Meteorology Atmospheric Sciences	84	<input type="checkbox"/> Physics Condensed Matter	29
<input type="checkbox"/> Computer Science Information Systems	1,037	<input type="checkbox"/> Agronomy	83	<input type="checkbox"/> Social Sciences Mathematical Methods	29
<input type="checkbox"/> Business	976	<input type="checkbox"/> Ophthalmology	83	<input type="checkbox"/> Engineering Mechanical	28
<input type="checkbox"/> Green Sustainable Science Technology	819	<input type="checkbox"/> Psychology Clinical	83	<input type="checkbox"/> Ergonomics	28
<input type="checkbox"/> Environmental Studies	736	<input type="checkbox"/> Rehabilitation	83	<input type="checkbox"/> Transportation Science Technology	27
<input type="checkbox"/> Public Environmental Occupational Health	722	<input type="checkbox"/> Engineering Manufacturing	82	<input type="checkbox"/> Agriculture Dairy Animal Science	26
<input type="checkbox"/> Education Educational Research	690	<input type="checkbox"/> Anesthesiology	79	<input type="checkbox"/> History Of Social Sciences	25
<input type="checkbox"/> Multidisciplinary Sciences	577	<input type="checkbox"/> Plant Sciences	79	<input type="checkbox"/> Instruments Instrumentation	25
<input type="checkbox"/> Medicine General Internal	560	<input type="checkbox"/> Biodiversity Conservation	78	<input type="checkbox"/> Mathematics	25
<input type="checkbox"/> Surgery	530	<input type="checkbox"/> Cell Biology	76	<input type="checkbox"/> Critical Care Medicine	24
<input type="checkbox"/> <small>etc.</small>	442	<input type="checkbox"/> Urology Nephrology	76	<input type="checkbox"/> Biochemical Research Methods	23
		<input type="checkbox"/> Otorhinolaryngology	75	<input type="checkbox"/> Industrial Relations Labor	23
		<input type="checkbox"/> Gastroenterology Hepatology	72	<input type="checkbox"/> Religion	22
		<input type="checkbox"/> Nanoscience Nanotechnology	71		

NOT Publication Years: 2022

Refine by Publication Years

Search for Publication Years 

Select all Date ▾

Publication Year	Count	Publication Year	Count	Publication Year	Count
2022	61	2009	173	1996	45
2021	435	2008	137	1995	36
2020	497	2007	93	1994	29
2019	377	2006	90	1993	34
2018	396	2005	76	1992	38
2017	421	2004	48	1991	26
2016	388	2003	49	1990	12
2015	384	2002	39	1989	12
2014	289	2001	48	1988	23
2013	271	2000	44	1987	13
2012	243	1999	44	1986	13
2011	226	1998	43	1985	13
2010	188	1997	36		

Exclude incomplete years: 2022
Results: 5,329 documents

Document types:

Articles or Proceedings

Papers or Review Articles

Languages: English

Refine by Document Types

Search for Document Types

Select all

Document Type	Count
Articles	4,898
Proceedings Papers	235
Review Articles	209
Editorial Materials	74
Letters	62
Early Access	59
Book Reviews	53
Corrections	10
Notes	9
Biographical Items	6
Reprints	3
Bibliographies	2
Retractions	2
Meeting Abstracts	1
Retracted Publications	1

Results count

Refine by Languages

Search for Languages

Select all

Language	Count
English	4,441
Spanish	324
Portuguese	230
Russian	56
Turkish	18
German	16
Catalan	7
Italian	6
French	4
Japanese	3
Croatian	1

Results count

Refine by document type:
articles, proceedings papers, and
review articles

Results: 5,107 documents

Refine by language: English
Results: 4,441 documents

Continue the search or export the results

The screenshot shows the Web of Science search results page. At the top, there are navigation links for 'Search', 'Marked List', 'History', and 'Alerts'. On the right, there are 'Sign In' and 'Register' buttons. Below the header, the search query is displayed: "Results for \"bibliometric\" (Topic) OR \"science map\" (Topic) and Informati...". The main content area displays a total of 4,441 results. The search bar at the top contains the query "bibliometric" (Topic) or "science map" (Topic). Below the search bar are several refinement filters: "Web of Science Categories: Information Science Library Science", "NOT Publication Years: 2022", "Document Types: Articles or Proceedings Papers or Review Articles", and "Languages: English". There is also a "Clear all" link. A "Copy query link" button is available. The results are sorted by relevance. At the bottom of the page, there is a search bar for "Search within results for..." and a purple question mark icon.

Now we should continue our search strategy (using other filters) or export the results

Search history

History represents
a classical
PRISMA diagram
It shows the
search steps we
just performed

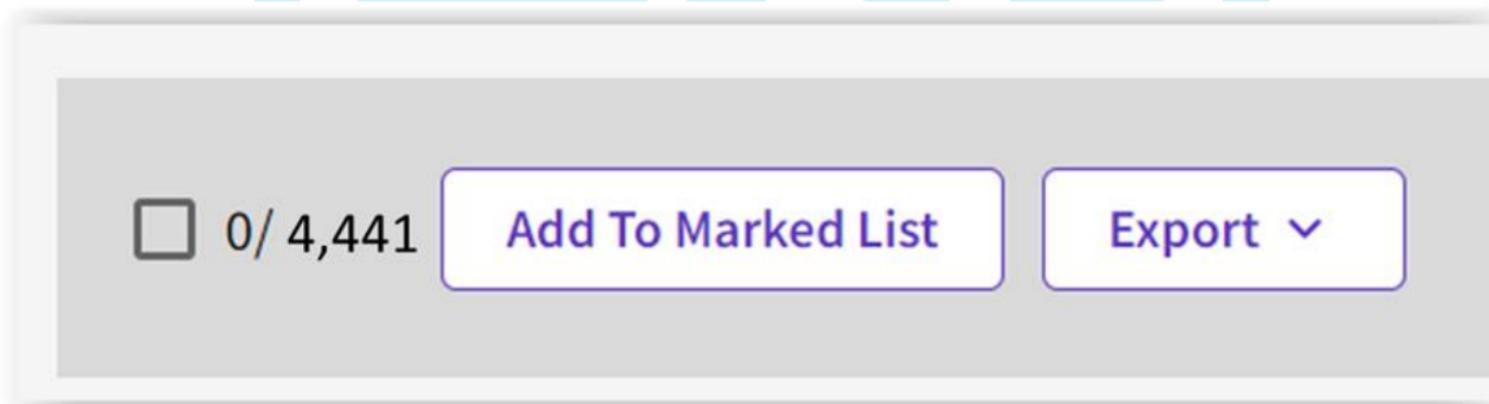
The screenshot shows the Web of Science search history interface. At the top, there are tabs for 'Search', 'Marked List', 'History' (which is highlighted with a blue box and has a blue arrow pointing to it), and 'Alerts'. To the right are 'English', 'Products', 'Sign In', and 'Register' buttons. Below the tabs is a purple header bar with the text 'Search History' and a 'Clear History' button. The main area is a table with columns for 'Type', 'Search Query and Results', 'Database', 'Results', and 'Actions'. There are five rows in the table, each representing a search step:

Type	Search Query and Results	Database	Results	Actions
Search	"bibliometric" (Topic) or "science map" (Topic) and Information Science Library Science (Web of Science Categories) and 2022 (Exclude - Publication Years) and Articles or Proceedings Papers or Review Articles (Document Types) and English (Languages)	Web of Science Core Collection Show editions	4,441	Go, Edit, Alert, Delete
Search	"bibliometric" (Topic) or "science map" (Topic) and Information Science Library Science (Web of Science Categories) and 2022 (Exclude - Publication Years) and Articles or Proceedings Papers or Review Articles (Document Types)	Web of Science Core Collection Show editions	5,107	Go, Edit, Alert, Delete
Search	"bibliometric" (Topic) or "science map" (Topic) and Information Science Library Science (Web of Science Categories) and 2022 (Exclude - Publication Years)	Web of Science Core Collection Show editions	5,329	Go, Edit, Alert, Delete
Search	"bibliometric" (Topic) or "science map" (Topic) and Information Science Library Science (Web of Science Categories)	Web of Science Core Collection Show editions	5,390	Go, Edit, Alert, Delete
Search	"bibliometric" (Topic) or "science map" (Topic)	Web of Science Core Collection Show editions	20,248	Go, Edit, Alert, Delete

Clicking on a
result, we can go
back along the
search steps.

Difference between “Add to marked list” and “export”

- **Export** allows you to immediately export the results of your search
- **Marked List** is a sort of “shopping cart” where we can save your meta-data collection and we can continue to manipulate or export the results of your search in the future



“Add to marked list”

Add to marked list

All records on page

Records from 1 to 4441

Maximum records: 50.000

[Cancel](#) [Add](#)

Clarivate Web of Science™ Search [Marked List 4441](#) History Alerts Sign In Register

Marked List

DOCUMENTS 4441 CHEMICAL STRUCTURES 0

4,441 results in Web of Science Core Collection

Analyze Results Citation Report

Sort by: Relevance 1 of 89

Unfiled Documents

0/4,441 Remove Export

My Lists

You currently have no lists

Refine results

Search within list for...

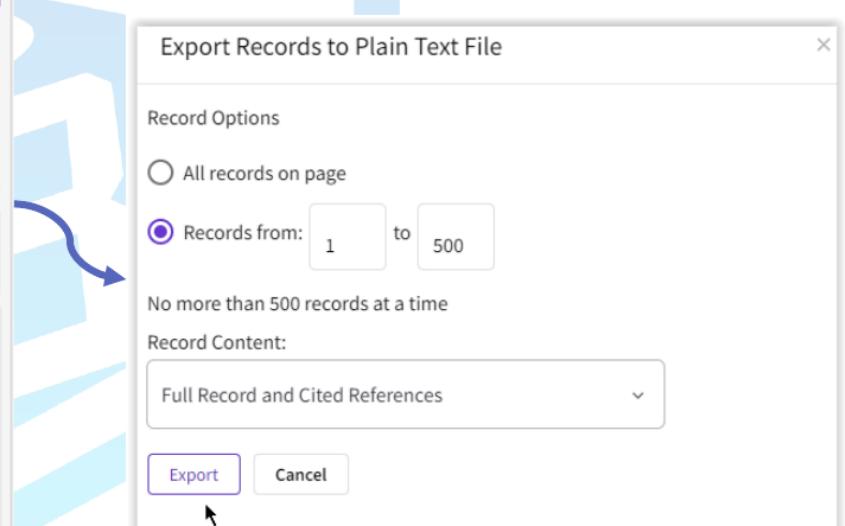
1 Global research trends in augmented reality: scientometric mapping based on Scopus database
 Borgohain, DJ; Bhanage, DA; (...); Pawar, AV
 Dec 2021 (Early Access) | INFORMATION DISCOVERY AND DELIVERY
 Purpose This study aims to present a scientometric analysis of publications related to "Augmented Reality." In today's Information Technology-driven era, augmented reality (A.R.) has evolved as a new immersive data source for developing knowledge combining authentic and digital images. Consequently, extensive research is going on ... Show more
[Find It](#) [Full Text at Publisher](#) *** 46 References Related records ?

2 Artificial intelligence research in agriculture: a review
 Sood, A; Sharma, RK and Bhardwaj, AK

“Export”

The screenshot shows the Web of Science search interface. The search bar contains the query "bibliometric" (Topic) or "science map" (Topic). The results page displays 4,441 documents from the Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), and Emerging Sources Citation Index (ESCI). A dropdown menu is open over the first result, showing various export options: EndNote online, EndNote desktop, Add to my Publons profile, Plain text file, RIS (other reference software), BibTeX, Excel, Tab delimited file, Printable HTML file, InCites, Email, and More Export Options. The 'Plain text file' option is highlighted with a mouse cursor.

Repeat this operation until the total number of documents is reached (e.g., from 1 to 500, from 501 to 1000, etc.)



WoS will download many plain text files called: saverecs.txt, saverecs (1).txt, ...



Biblioshiny interface

Tabs, Methods, Workflow

bibliometrix package installation

```
# first installation
install.packages("bibliometrix")
library(bibliometrix)
biblioshiny()

# To upgrade the package
install.packages("devtools")
devtools::install_github("massimoaria/bibliometrix")
```

> install.packages("bibliometrix")
Installazione pacchetto in 'C:/Users/Nicola/Documents/R/win-library/4.1'
(perché 'lib' non è specificato)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.1/bibliometrix_3.2.1.zip'
Content type 'application/zip' length 902833 bytes (881 KB)
downloaded 881 KB

package 'bibliometrix' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:\Users\Nicola\AppData\Local\Temp\RtmpwUuMLI\downloaded_packages
> library(bibliometrix)
To cite bibliometrix in publications, please use:

Aria, M. & Cuccurullo, C. (2017) bibliometrix: An R-tool for comprehensive science mapping analysis, Journal of Informetrics, 11(4), pp 959-975, Elsevier.

<https://www.bibliometrix.org>

For information and bug reports:
- Send an email to info@bibliometrix.org
- Write a post on <https://github.com/massimoaria/bibliometrix/issues>

Help us to keep Bibliometrix free to download and use by contributing with a small donation to support our research team (<https://bibliometrix.org/donate.html>)

To start with the shiny web-interface, please digit:
biblioshiny()
> biblioshiny()

Environment History Connections Tutorial Project: (None)

Environment is empty

Files Plots Packages Help Viewer R: Comprehensive Science Mapping Analysis Find in Topic bibliometric-package (bibliometrix) R Documentation

Comprehensive Science Mapping Analysis

Description

Tool for quantitative research in scientometrics and bibliometrics. It provides various routines for importing bibliographic data from 'SCOPUS' (<<https://scopus.com>>), 'Clarivate Analytics Web of Science' (<<https://www.webofknowledge.com/>>), 'Digital Science Dimensions' (<<https://www.dimensions.ai>>), 'Cochrane Library' (<<https://www.cochranelibrary.com/>>), 'Lens' (<<https://lens.org>>), and 'PubMed' (<<https://pubmed.ncbi.nlm.nih.gov/>>) databases, performing bibliometric analysis and building networks for co-citation, coupling, scientific collaboration and co-word analysis.

Details

INSTALLATION

- Stable version from CRAN:
install.packages("bibliometrix")
- Or development version from GitHub:
install.packages("devtools") devtools::install_github("massimoaria/bibliometrix")
- Load "bibliometrix"
library(bibliometrix)

DATA LOADING AND CONVERTING

The export file can be imported and converted by R using the function *convert2df*:

Let's start play with biblioshiny!!!

Biblioshiny interface

After using the software remember to cite

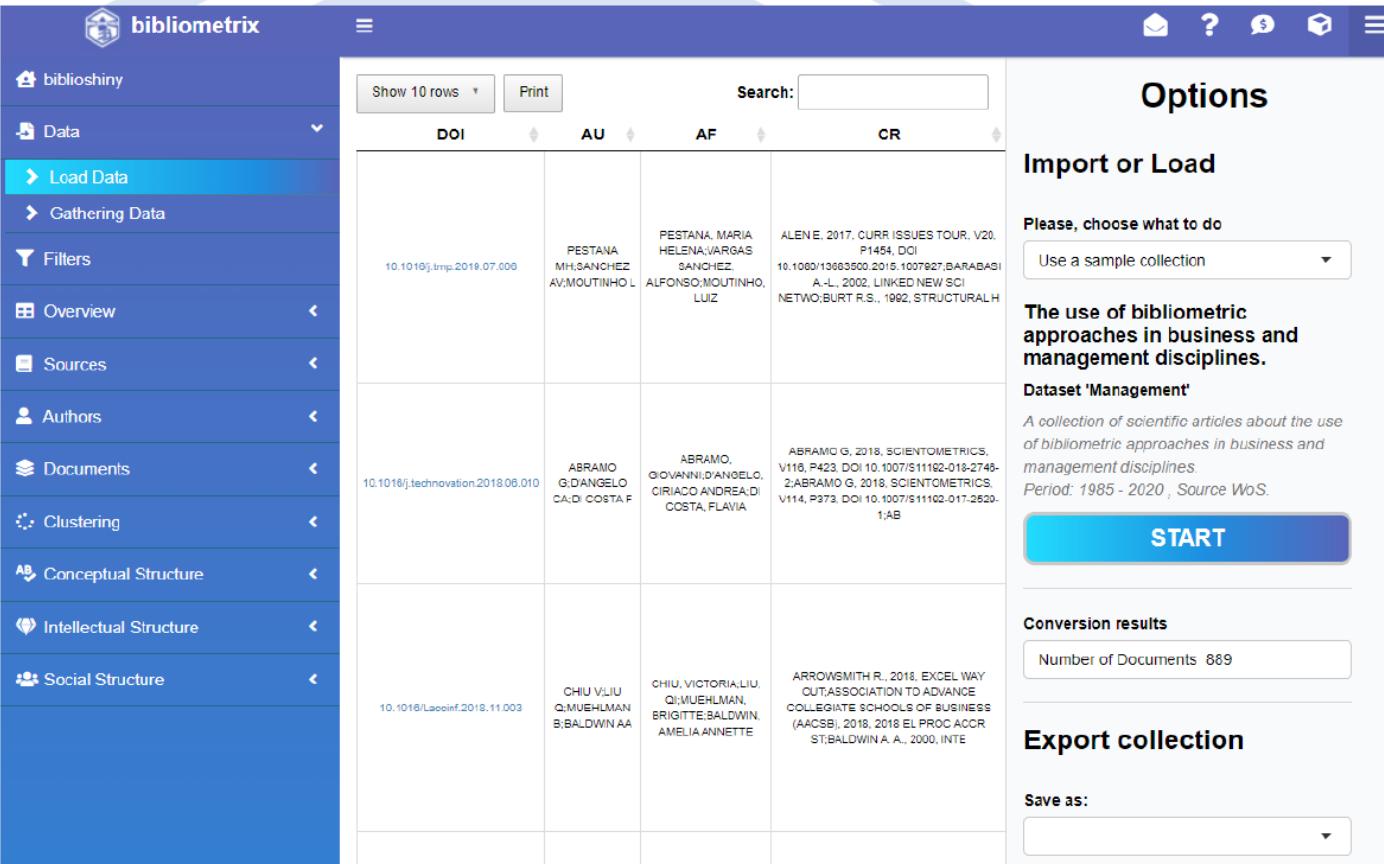
biblioshiny: the shiny app for
bibliometrix

Aria, M., & Cuccurullo, C. (2017). **bibliometrix: An R-tool for comprehensive science mapping analysis.** *Journal of Informetrics*, 11(4), 959-975.

- Notifications about software
 - Package tutorial
 - Information about Convert and import data
 - A biblioshiny tutorial
- Possibility of making donations that help ensure the future development of Bibliometrix.
- Link to:
 - bibliometrix
 - K-Synth
 - Github

Biblioshiny workflow

4 Levels of analysis
3 Structures of Knowledge

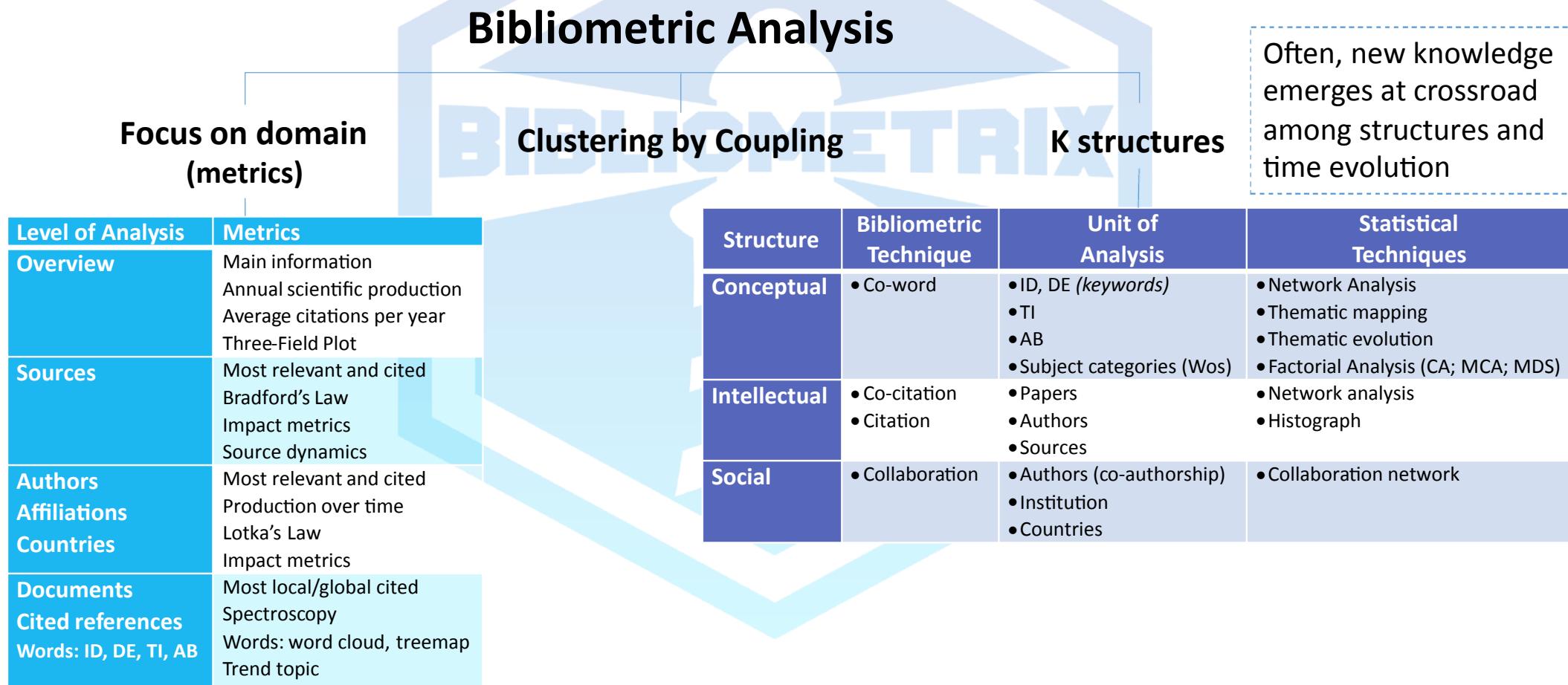


The screenshot shows the bibliometrix application interface. On the left, a sidebar lists 'Data' (Load Data, Gathering Data), 'Filters', 'Overview', 'Sources', 'Authors', 'Documents', 'Clustering', 'Conceptual Structure', 'Intellectual Structure', and 'Social Structure'. A blue bracket groups 'Authors', 'Documents', 'Clustering', 'Conceptual Structure', 'Intellectual Structure', and 'Social Structure' under '3 Structures of Knowledge'. Another blue bracket groups 'Data', 'Filters', 'Overview', 'Sources', and 'Authors' under '4 Levels of analysis'. The main area displays a table of search results with columns: DOI, AU, AF, and CR. The first result is for DOI 10.1010/jtmp.2018.07.006, with authors PESTANA MH; SANCHEZ AV; MOUTINHO L, and abstract text. The second result is for DOI 10.1016/j.technovation.2018.06.010, with authors ABRAMO G; DANGELO CA; DI COSTA F, and abstract text. The third result is for DOI 10.1016/Laceinf.2018.11.003, with authors CHIU VLIU Q; MUEHLMAN B; BALDWIN AA, and abstract text. To the right, there's an 'Options' panel with sections for 'Import or Load' (using a sample collection), 'The use of bibliometric approaches in business and management disciplines' (Dataset 'Management'), 'Conversion results' (Number of Documents: 889), and 'Export collection' (Save as: dropdown).

DOI	AU	AF	CR
10.1010/jtmp.2018.07.006	PESTANA MH; SANCHEZ AV; MOUTINHO L	PESTANA, MARIA HELENA; VARGAS SANCHEZ, ALFONSO; MOUTINHO, LUIZ	ALEN E., 2017, CURR ISSUES TOUR, V20, P1454, DOI 10.1080/13663500.2015.1007927; BARABASI A.-L., 2002, LINKED NEW SCI NETW; BURT R.S., 1992, STRUCTURAL H
10.1016/j.technovation.2018.06.010	ABRAMO G; DANGELO CA; DI COSTA F	ABRAMO, GIOVANNI; DANGELO, CIRIACO ANDREA; DI COSTA, FLAVIA	ABRAMO G., 2018, SCIENTOMETRICS, V116, P423, DOI 10.1007/S11192-018-2748-2; ABRAMO G., 2018, SCIENTOMETRICS, V114, P373, DOI 10.1007/S11192-017-2520-1; AB
10.1016/Laceinf.2018.11.003	CHIU VLIU Q; MUEHLMAN B; BALDWIN AA	CHIU, VICTORIA; LIU, QI; MUEHLMAN, BRIGITTE; BALDWIN, AMELIA ANNETTE	ARROWSMITH R., 2018, EXCEL WAY CUT; ASSOCIATION TO ADVANCE COLLEGiate SCHOOLS OF BUSINESS (AACSB), 2018, EL PROC ACCR ST; BALDWIN A. A., 2000, INTE

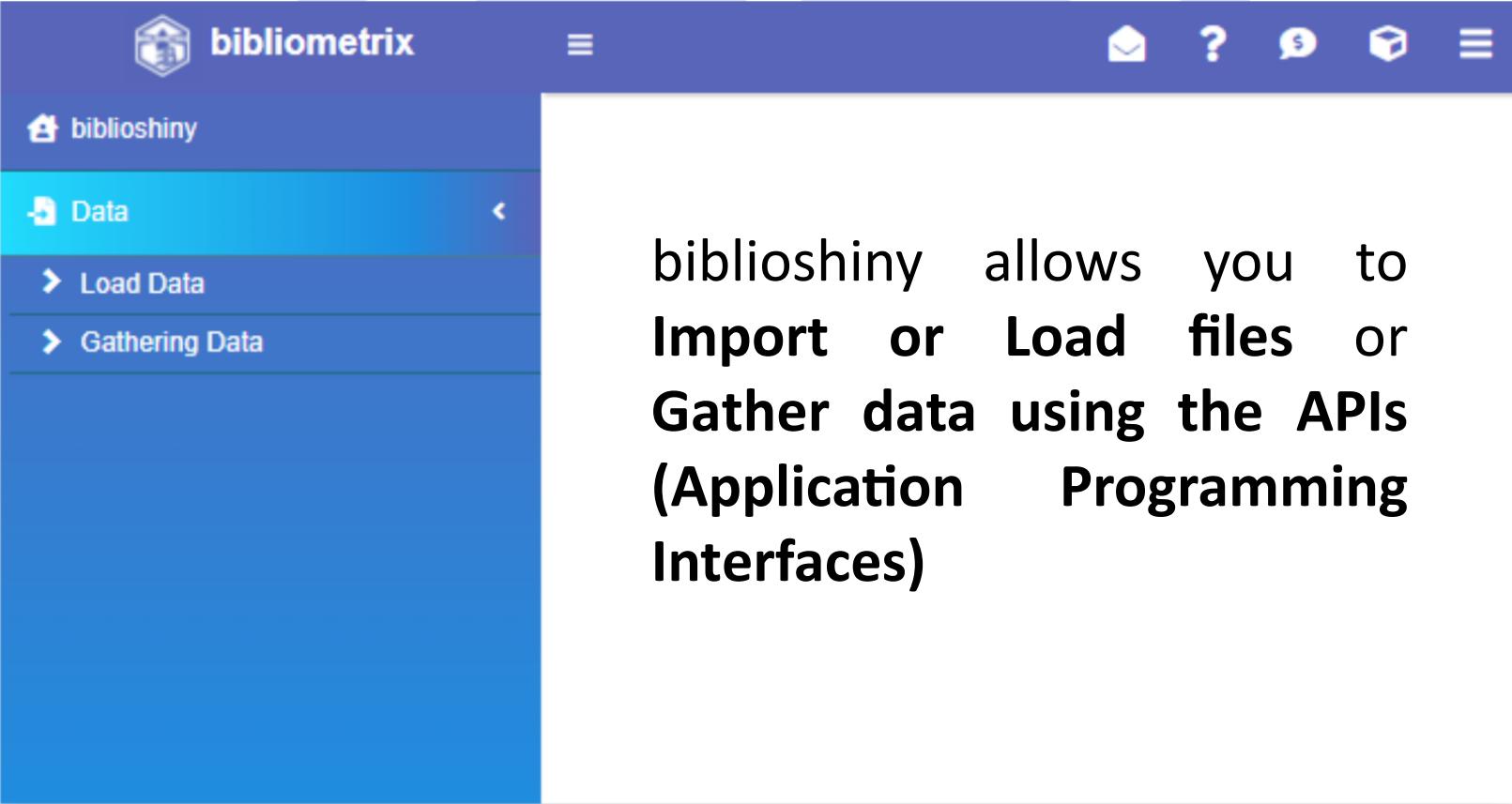
Organized according to the science mapping workflow

Bibliometric Analysis for Systematic Literature Reviews





Loading and converting a meta-data collection



bibloshiny allows you to **Import** or **Load** files or **Gather** data using the **APIs (Application Programming Interfaces)**

Loading and converting a meta-data collection

Data downloaded through this API cannot be used for identifying citation, bibliographic coupling, and co-citation links between items.

biblioshiny can download data via APIs

bibliometrix provides support for the APIs of **Dimensions, NCBI PubMed and Scopus.**

Options

Gather data using APIs

Database: PubMed

1. Configure API request

Your Query

Documents returned using your query
PubMed API returns 0 documents

2. Download metadata

Export a bibliometrix file

Save as:

Database selection

Number of Documents

Export meta-data

Loading and converting a meta-data collection

The screenshot shows a web-based interface for the PubMed API. On the left, there's a sidebar with options like 'Gather data using API', 'Database' (set to PubMed), and 'Export a bibliometrix'. The main area has a title 'PubMed API' and a sub-section '1) Generate a valid query'. It includes fields for 'Search terms' (empty), 'Start Year' (1990), and 'End Year' (2022). A blue button labeled 'Try the query' is present. Below it is a section 'Query Translation' with the heading 'Documents returned using your query'. Another section '2) Choose how many documents to download' follows, with a slider set to 1. At the bottom right of the modal are 'Cancel' and 'OK' buttons.

By default, the access to **PubMed API** is free and does not necessarily require an API key. In this case, PubMed limits users to making only 3 requests per second. Users who register for an API key are able to make up to ten requests per second

Loading and converting a meta-data collection

The screenshot shows the PubMed API interface within the biblioshiny application. The sidebar on the left lists various features: Data, Load Data (selected), Gathering Data, Filters, Overview, Sources, Authors, Documents, Clustering, Conceptual Schemas, Intellectual Structures, and Social Structure. The main panel has a title "PubMed API" and two sections:

- 1) Generate a valid query**

Search terms:

Start Year: 1990

End Year: 2022

Try the query

Query Translation: Not valid search terms

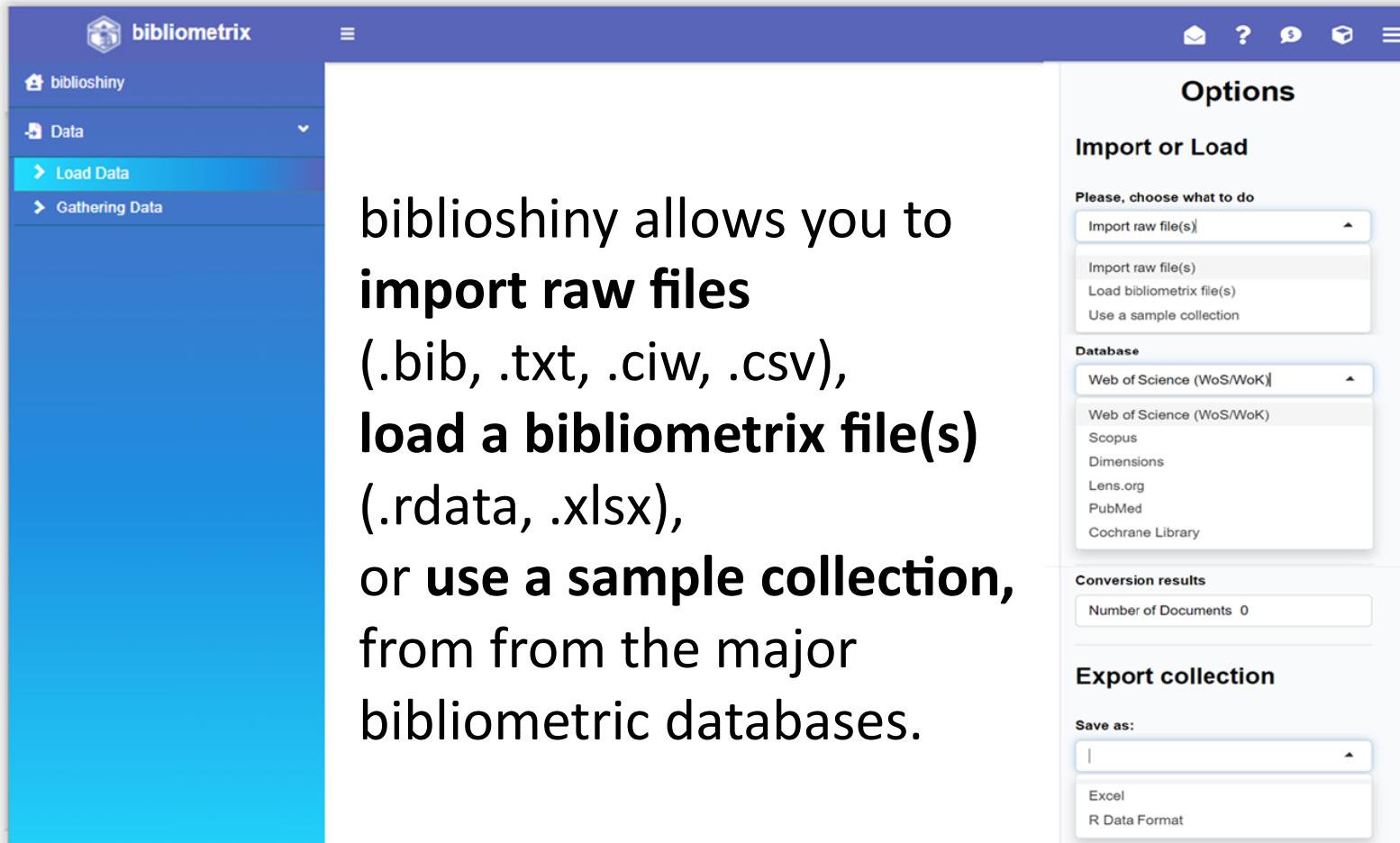
Documents returned using your query: PubMed returns 0 documents
- 2) Choose how many documents to download**

Total document to download: 1

At the bottom right are "Cancel" and "OK" buttons.

Dimensions API needs an account to obtain a valid token to query the database. The account can be obtained for free for scientometric research project asking for it at <https://www.dimensions.ai/scientometric-research/>

Loading and converting a meta-data collection



The screenshot shows the biblioshiny application interface. The left sidebar has a blue header with the 'bibliometrix' logo and the word 'biblioshiny'. Below it is a dropdown menu with 'Data' selected, which is highlighted in blue. Under 'Data', there are two options: 'Load Data' (selected) and 'Gathering Data'. The main content area contains the following text:

**biblioshiny allows you to
import raw files
(.bib, .txt, .ciw, .csv),
load a bibliometrix file(s)
(.rdata, .xlsx),
or use a sample collection,
from from the major
bibliometric databases.**

The right side of the interface is titled 'Options' and includes sections for 'Import or Load' (with sub-options for 'Import raw file(s)', 'Load bibliometrix file(s)', and 'Use a sample collection'), 'Database' (listing 'Web of Science (WoS/WoK)', 'Scopus', 'Dimensions', 'Lens.org', 'PubMed', and 'Cochrane Library'), 'Conversion results' (showing 'Number of Documents 0'), and 'Export collection' (with a 'Save as:' dropdown containing 'Excel' and 'R Data Format').

Loading and converting a meta-data collection

Options

Import or Load

Please, choose what to do
Import raw file(s)

Database
Web of Science (WoS/WoK)

Choose a file
Browse... TXT Files.zip Upload complete

START

Conversion results
Number of Documents 4441

Export collection
Save as:

Database selection
File selection
Number of Documents
Convert/Export meta-data

Multiple export files (e.g. savedrecs.txt, savedrecs(1).txt., etc) can be imported by a single “.zip” file

Loading and converting a meta-data collection

bibliometrix

Show 10 rows Print Search:

DOI	AU	AF	CR	AB	AR	BE	BN	BP	C1	CL	CT	CY	DA	DE	DI	DT	EA
10.1953/jla.2004.0055	ROBINSON AM, SCHLEGL K	ROBINSON, AM; SCHLEGL, K	DAVIS PM, 2003, PORTAL-LIBR ACADEM, V3, P41, DOI 10.1353/pla.2003.0055/DAVIS PM, 2002, COLL RES LIBR, V03, P53, DOI 10.5860/crl.63.1.53/DAVIS PM, 2001,	THIS PAPER USES BIBLIOMETRIC ANALYSIS TO TEST THE EFFICACY OF IN-CLASS LIBRARY INFORMATION IN RELATION TO THE QUALITY OF STUDENT TERM PAPER BIBLIOGRAPHY					275	WILFRID LAURIER UNIV, BRANTFORD, ON, CANADA; NOVOTNY, INST TECHNOL, EDMONTON, AB, CANADA;			2022-03-22	10.1953/jla.2004.0055	ARTICLE		
10.1023/B:SCIE.0000045120.04489.80	MEYER M, BHATTACHARYA S	MEYER, M; BHATTACHARYA, S	BHATTACHARYA S, 2003, SCIENTOMETRICS, V58, P285, DOI 10.1023/A:10202845104 BHATTACHARYA S, 2003, SCIENTOMETRICS, V58, P369, DOI 10.1023/A:1028244828	CO-AUTHORSHIP ANALYSIS IS A WELL-ESTABLISHED TOOL IN BIBLIOMETRIC ANALYSIS. IT CAN BE USED AT VARIOUS LEVELS TO TRACE COLLABORATIVE LINKS BETWEEN INDIVIDUALS					443	UNIV SUSSEX, FREEMAN CTR, SPRU SOC & TECHNOL POLICY RES, BRIGHTON BN1 9QE, E SUSSEX, ENGLAND.; KATHOLIEKE UNIV LEUVEN, STEUNPUNT OBO STAT, LOUWAN, BE			2022-03-22	10.1023/B:SCIE.0000045120.04489.80	ARTICLE		
10.3102/147164403781776618	GRANT J, GREEN L, MASON B	GRANT, J; GREEN, L; MASON, B	AVERY ME, 1992, EARLY HUM DEV V29, P49, DOI 10.1080/0305737800890056-5 M BROOKLEHURST P, 1989, BRIT J OBSTET GYNAEC, V106, P977, DOI 10.1111/j.1471-6	THE BIBLIOGRAPHIC DETAILS OF RESEARCH PAPERS UNDERPINNING FIVE CLINICAL ADVANCES IN NEONATAL INTENSIVE CARE WERE COLLATED AND ANALYSED USING APPLIED B					217	WELLCOME TRUST RES LABS, POLICY UNIT, LONDON NW1 2BE, ENGLAND.			2022-03-22	10.3102/147164403781776618	ARTICLE		
3, 2009, BIOMINFORMATICS, V2, P51-74, DOI 10.1007/s11089-009-9124-z	ANSIANSIAN BARRON JR, CHEST, V129, P1098, D		2011, P-44 ANN HAW INT C L, 2012, INFORM PROGRESS V4G, V4B, P671, DOI 10.1111/09.001/ABASIA, 2011, INFORMATICA, V5, P100, DOI 10.1007/s11089-011-9141-6	THIS STUDY EXPLORES THE EVOLUTION OF INSTITUTIONAL COLLABORATIONS IN ARTICLES PUBLISHED IN THE INFORMATICA MANAGEMENT JOURNAL BETWEEN 1980 AND 2011 VIA					203	AMER UNIV, MIDDLE EAST, COLL BUSINESS ADM, EGALA, KUWAIT; YILDIZ UNIV, BEYOGLU, ISTANBUL, TURKEY;			2022-03-22	10.1007/s11089-015-1894-5	ARTICLE		
			3, 2009, BIOMINFORMATICS, V2, P51-74, DOI 10.1007/s11089-009-9124-z	THE ORGANIZATION OF SCIENTIFIC PAPERS TYPICALLY FOLLOWS A STANDARDIZED PATTERN, THE WELL-KNOWN IMRAD STRUCTURE					184	UNIV QUEBEC, OBSERV SCI & TECHNOL CTR INTERUNIV RECH SCI & TECHNOL, MONTREAL PQ H3C 3P8, CANADA; UNIV MONTREAL, ECOLE			2022-03-22	BIBLIOMETRICS	10.1002/asi.23367	ARTICLE	

Bibliographic dataframe:

- Each row is a document
- Each column is a meta-data field

Filtering data

Language (LA)

Publication year (PY)

Document Type (DT)

Average Citation per Year

Source by Bradford's Law

In our example, we do not need to apply any filter