

Using the VOSviewer software for bibliometric analysis

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Reviewer:

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2022

Presentation summary

- VOSviewer software;
- Database searches: Web of Science (WoS) and Scopus;
- Mapping relationship networks;
- Adjusting the 'Database.xlsx' file for use in the VOSviewer software
- References;

VOSviewer software

VOSviewer software

“VOSviewer is a software tool for constructing and visualizing bibliometric networks. These networks may for instance include journals, researchers, or individual publications, and they can be constructed based on citation, bibliographic coupling, co-citation, or co-authorship relations. VOSviewer also offers text mining functionality that can be used to construct and visualize co-occurrence networks of important terms extracted from a body of scientific literature.”

VOSviewer software

Download: <https://www.vosviewer.com/>

VOSviewer

Leiden University | CWTS | CWTS B.V. | Other CWTS sites

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Welcome to VOSviewer

VOSviewer is a software tool for constructing and visualizing bibliometric networks. These networks may for instance include journals, researchers, or individual publications, and they can be constructed based on citation, bibliographic coupling, co-citation, or co-authorship relations. VOSviewer also offers text mining functionality that can be used to construct and visualize co-occurrence networks of important terms extracted from a body of scientific literature.

VOSviewer version 1.6.18

VOSviewer version 1.6.18 was released on January 24, 2022. The following features have been added:

- Creating maps based on OpenAlex

Database searches: Web of Science (WoS) and Scopus

Database searches: Web of Science (WoS) and Scopus

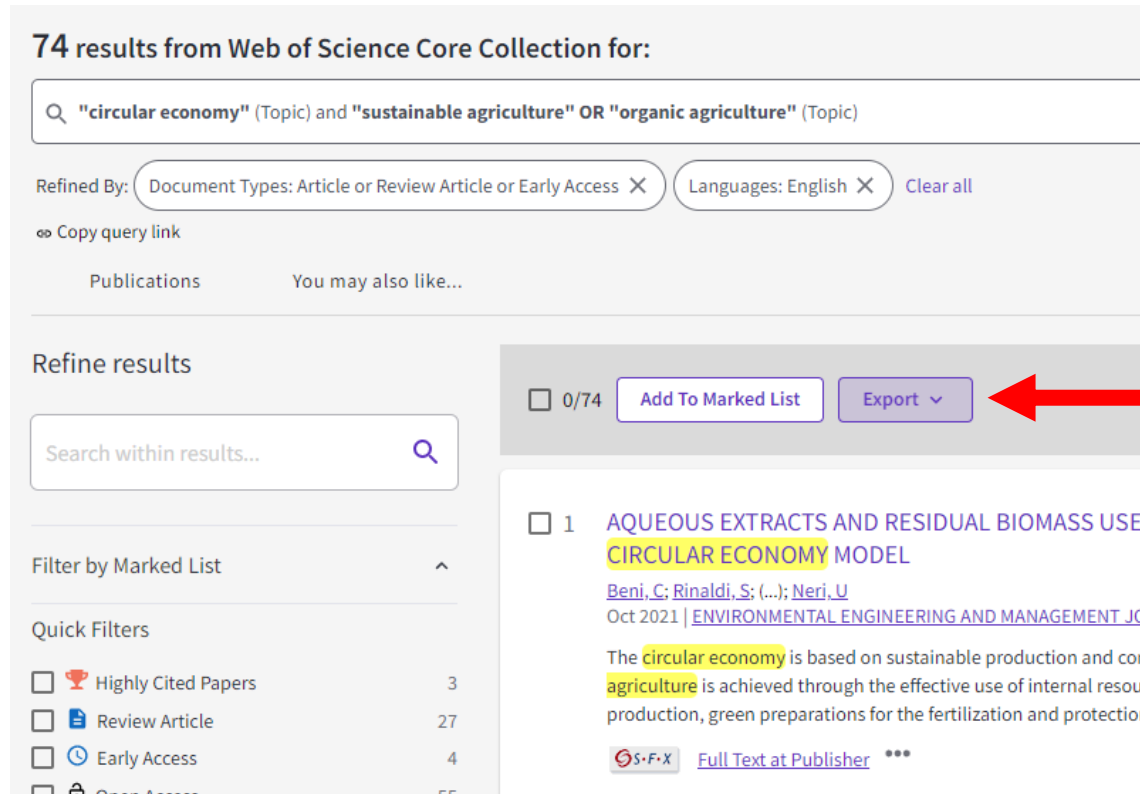
VOSviewer generates the bibliometric networks from Web of Science files in "TXT" format and Scopus files in "CSV" format.

Database searches: Web of Science

Database searches: Web of Science (WoS)

Exporting document information

After performing the searches and applying the filters, the next step is to export information in a file format compatible with VOSviewer.



74 results from Web of Science Core Collection for:

Q "circular economy" (Topic) and "sustainable agriculture" OR "organic agriculture" (Topic)

Refined By: Document Types: Article or Review Article or Early Access X Languages: English X Clear all

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Quick Filters

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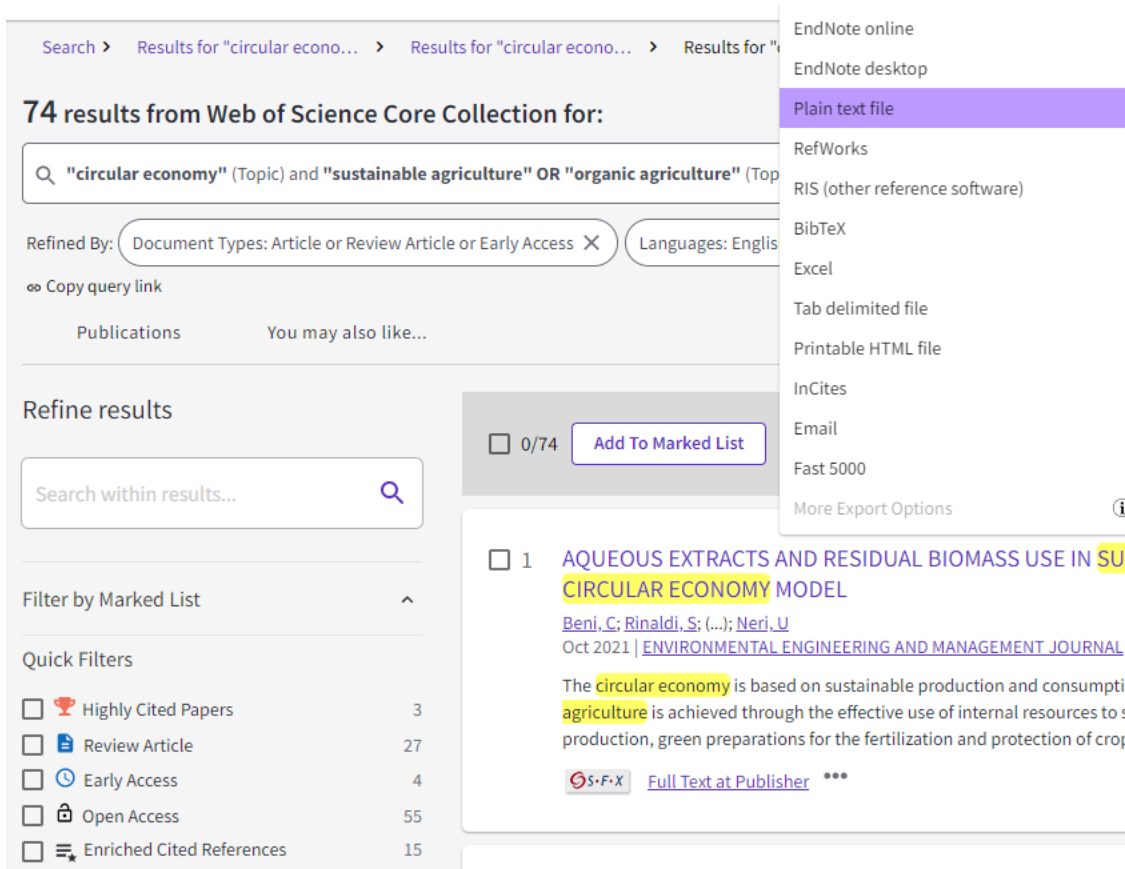
0/74 Add To Marked List Export v

1 AQUEOUS EXTRACTS AND RESIDUAL BIOMASS USE I
 CIRCULAR ECONOMY MODEL
 Beni, C; Rinaldi, S; (...); Neri, U
 Oct 2021 | ENVIRONMENTAL ENGINEERING AND MANAGEMENT JOI
 The circular economy is based on sustainable production and cons
 agriculture is achieved through the effective use of internal resour
 production, green preparations for the fertilization and protection
 SFX Full Text at Publisher ***

Step 1: Click "export".

Database searches: Web of Science (WoS)

Exporting document information



Search > Results for "circular econo..." > Results for "circular econo..." > Results for "

74 results from Web of Science Core Collection for:

Q "circular economy" (Topic) and "sustainable agriculture" OR "organic agriculture" (Top

Refined By: Document Types: Article or Review Article or Early Access X Languages: Englis

Copy query link

Publications You may also like...

Refine results

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Quick Filters

- Highly Cited Papers 3
- Review Article 27
- Early Access 4
- Open Access 55
- Enriched Cited References 15

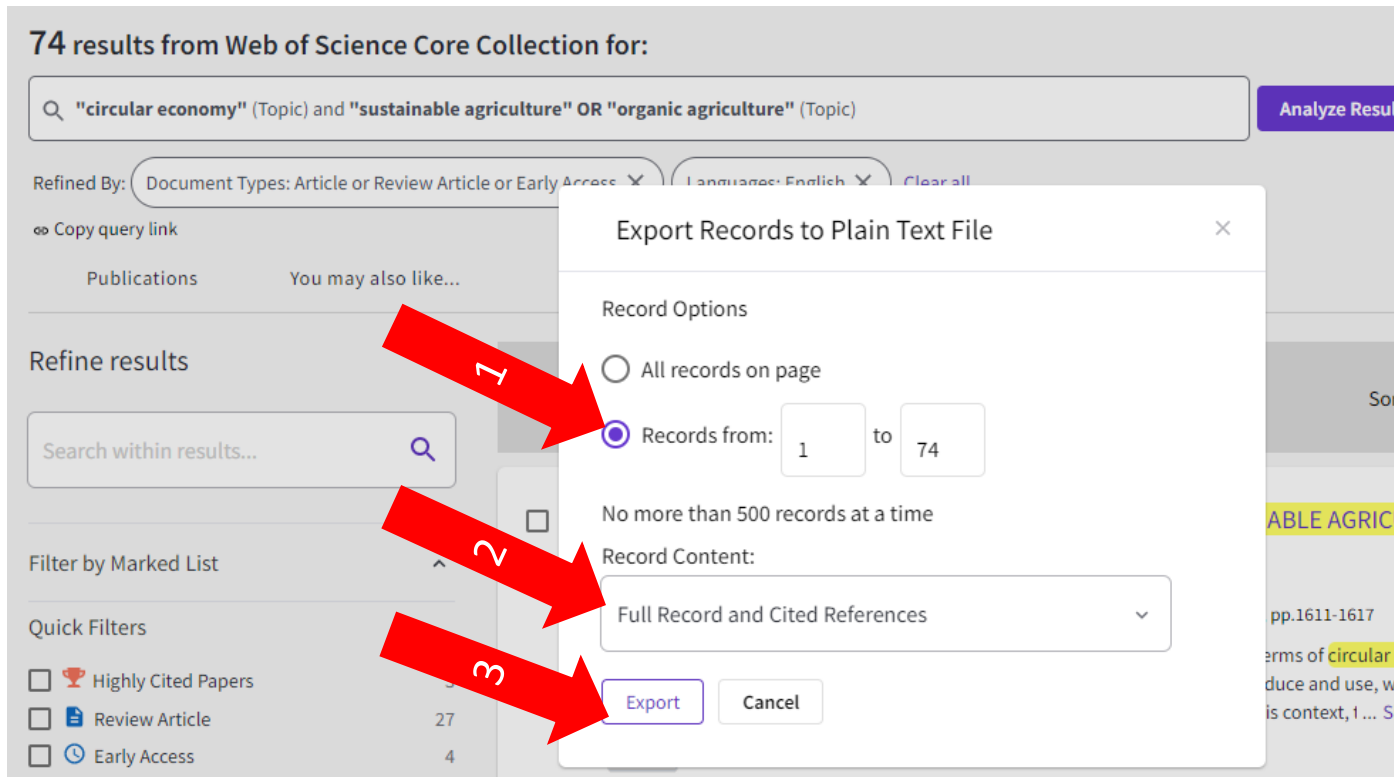
0/74 Add To Marked List

1 AQUEOUS EXTRACTS AND RESIDUAL BIOMASS USE IN SUS' CIRCULAR ECONOMY MODEL
 Beni, C. Rinaldi, S. (...); Neri, U
 Oct 2021 | ENVIRONMENTAL ENGINEERING AND MANAGEMENT JOURNAL 20
 The circular economy is based on sustainable production and consumptior agriculture is achieved through the effective use of internal resources to sel production, green preparations for the fertilization and protection of crops.
 SFX Full Text at Publisher ***

Step 2: Select the type of format that the data will be exported. **To use it in the VOSviewer, choose the "Plain text file" format.**

Database searches: Web of Science (WoS)

Exporting document information



1. Click “records from 1 to <TOTAL OF RESULTS>”.
2. Select the option **Full record and cited references** under record content.
3. Then click “export”.

A "savedrecs.txt" format file is created. To organize your research, save this file in a folder.

Database searches: Scopus

Database searches: Scopus

Export document information

After performing the searches and applying the filters, the next step is to export information in a file format compatible with VOSviewer.



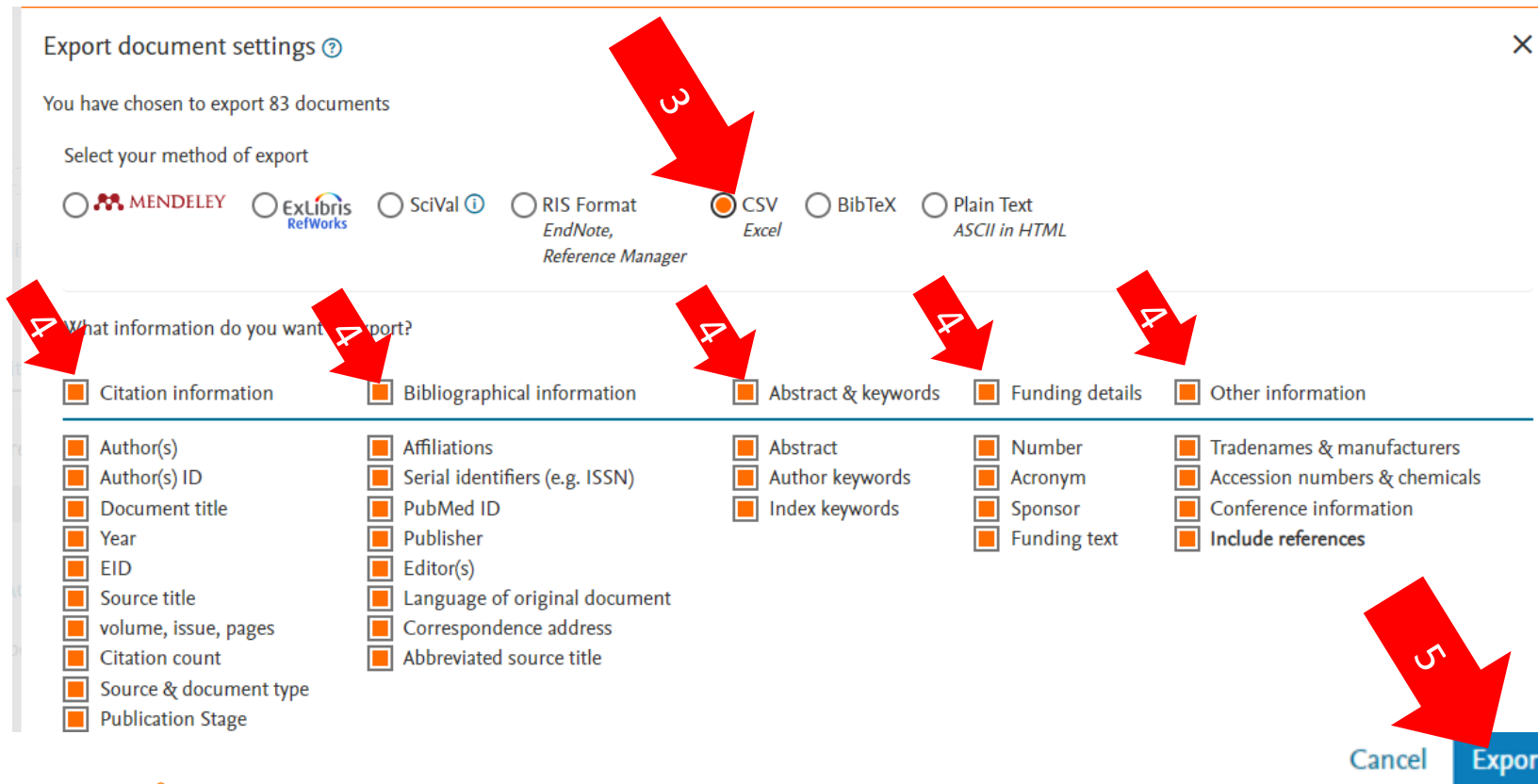
The screenshot shows the Scopus search results interface. A red arrow labeled '1' points to the 'All' dropdown menu in the top navigation bar. A second red arrow labeled '2' points to the 'Export' button in the same bar. Below the navigation bar, a table of search results is visible, with the first row highlighted.

Document title	Authors	Year	Source	Cite
Conversion of waste into organo-mineral fertilizers: current technological trends and prospects <i>Open Access</i>	Bouhia, Y., Hafidi, M., Ouhdouch, Y., (...), Zeroual, Y., Lyamlouli, K.	2022	Reviews in Environmental Science and Biotechnology 21(2), pp. 425-446	

1. **First step:** Click “all”.
2. **Second step:** Click “export”.

Database searches: Web of Science (WoS) and Scopus

Export document information



The screenshot shows the 'Export document settings' dialog box in Scopus. It indicates that 83 documents have been selected for export. The 'Select your method of export' section has 'CSV Excel' selected, indicated by a red arrow labeled '3'. The 'What information do you want to export?' section has several fields checked, indicated by red arrows labeled '4': Citation information, Bibliographical information, Abstract & keywords, Funding details, and Other information. The 'Export' button is highlighted with a red arrow labeled '5'.

3. **Third step:** Select CSV format.

4. **Fourth step:** Check all fields of information to export.

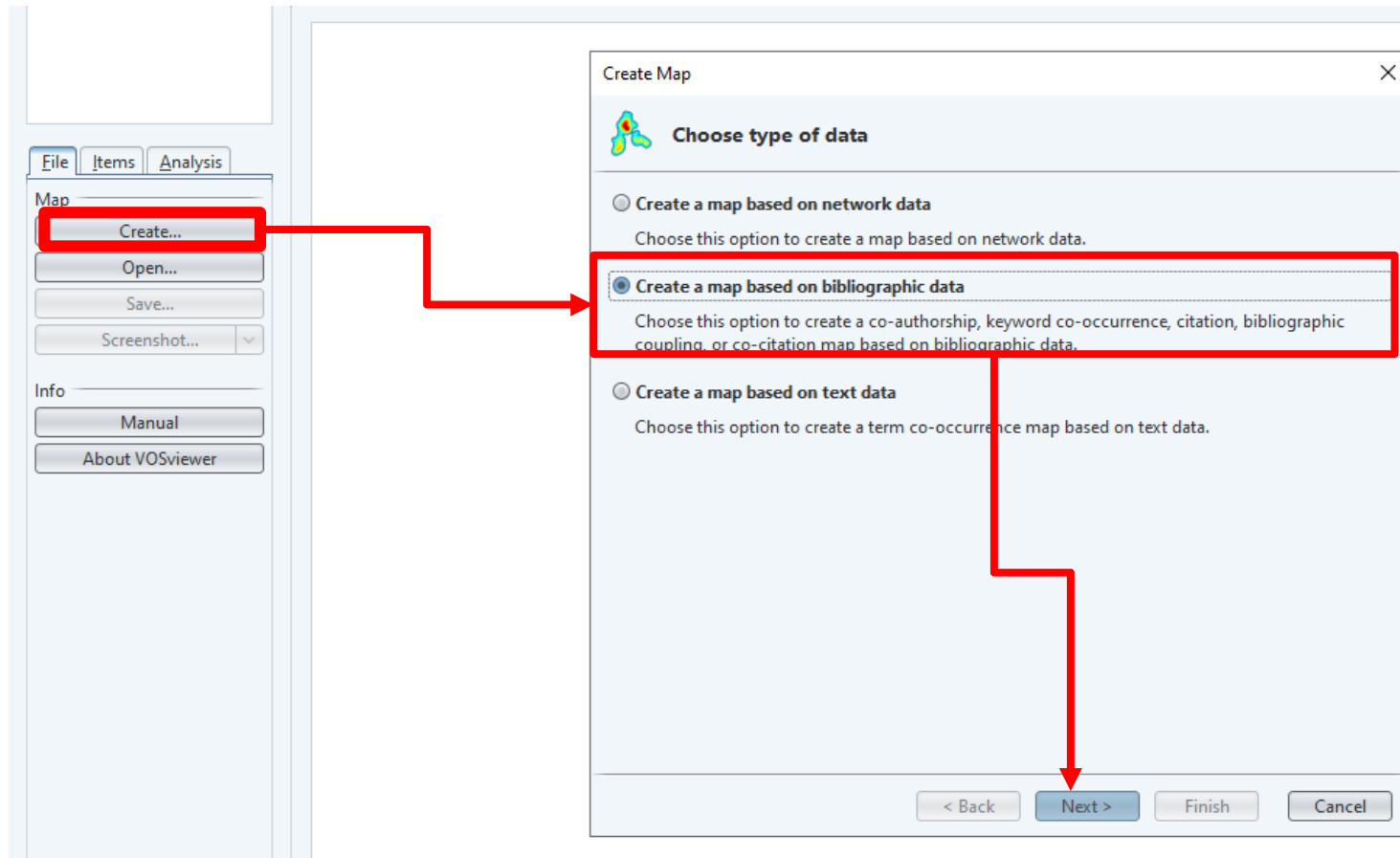
5. **Fifth step:** Click “export”.

A "scopus.csv" format file is created. To organize your research, save this file in a folder.

Mapping relationship networks

Mapping relationship networks

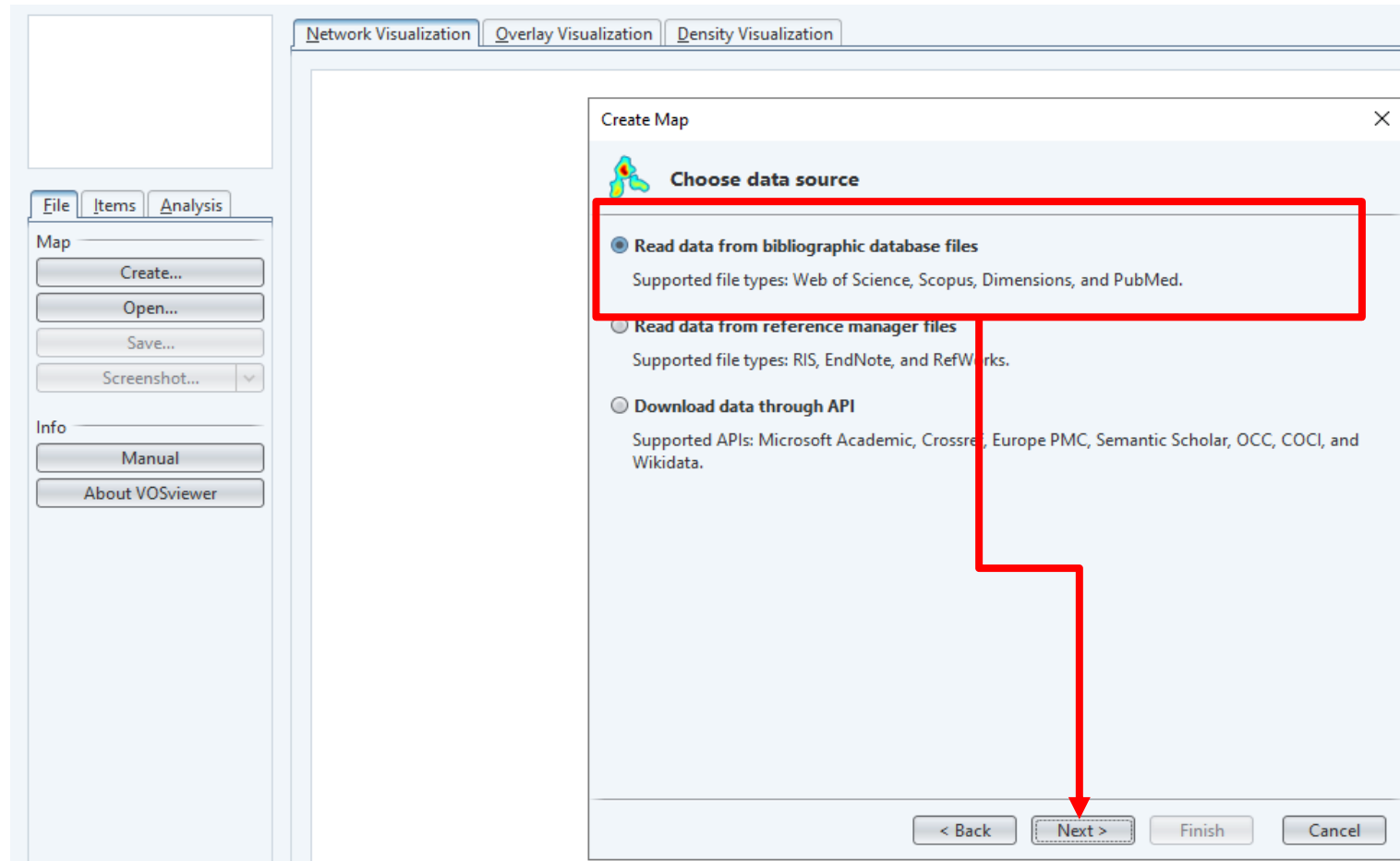
Importing files in VOSviewer



1. Click **“Create”**.
2. Click **“Create a map based on bibliographic data”**.
3. Click **“Next”**;

Mapping relationship networks

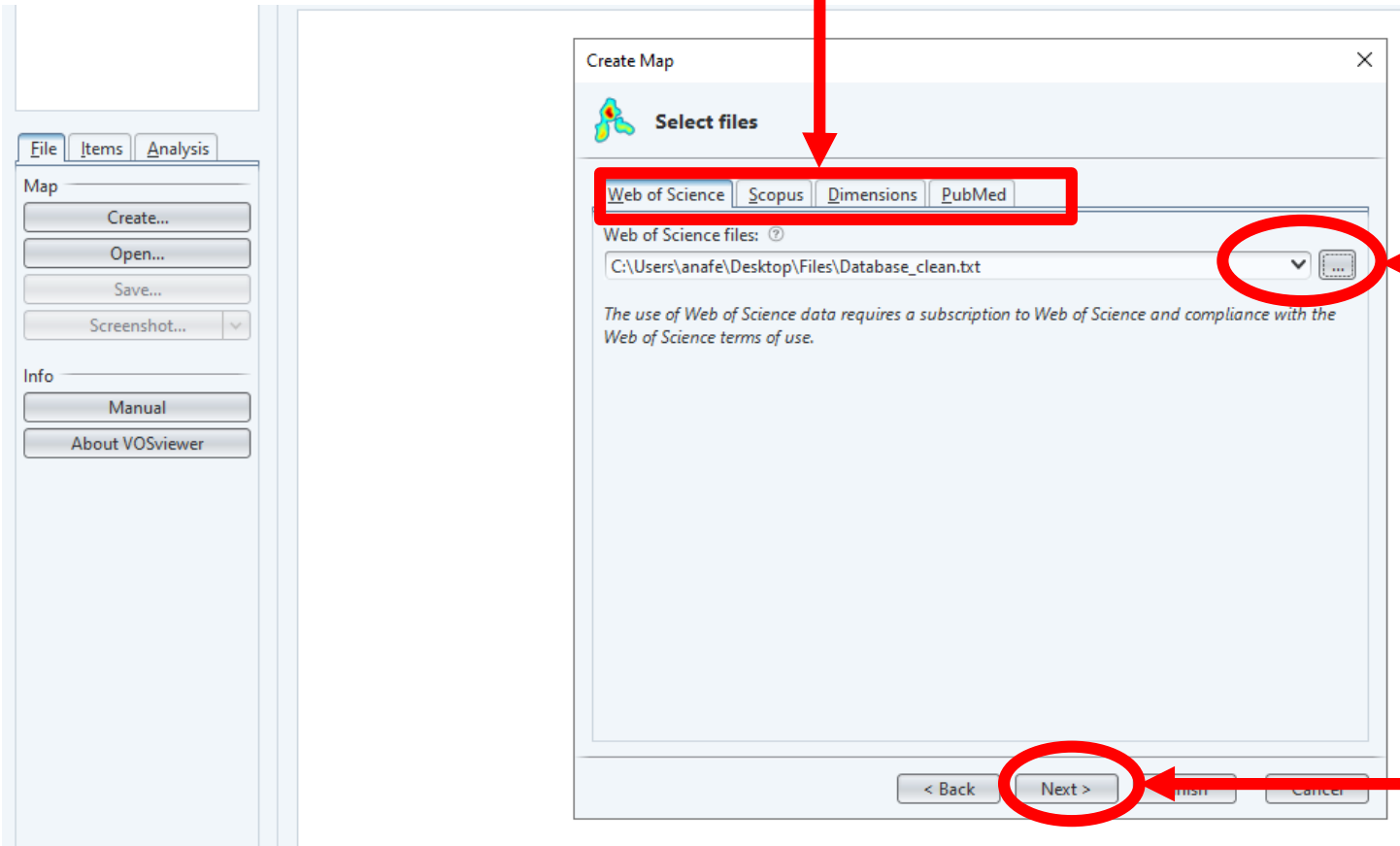
Importing files in VOSviewer



4. Click “Read from bibliographic databases files”;
5. Click “Next”;

Mapping relationship networks

Importing files in VOSviewer



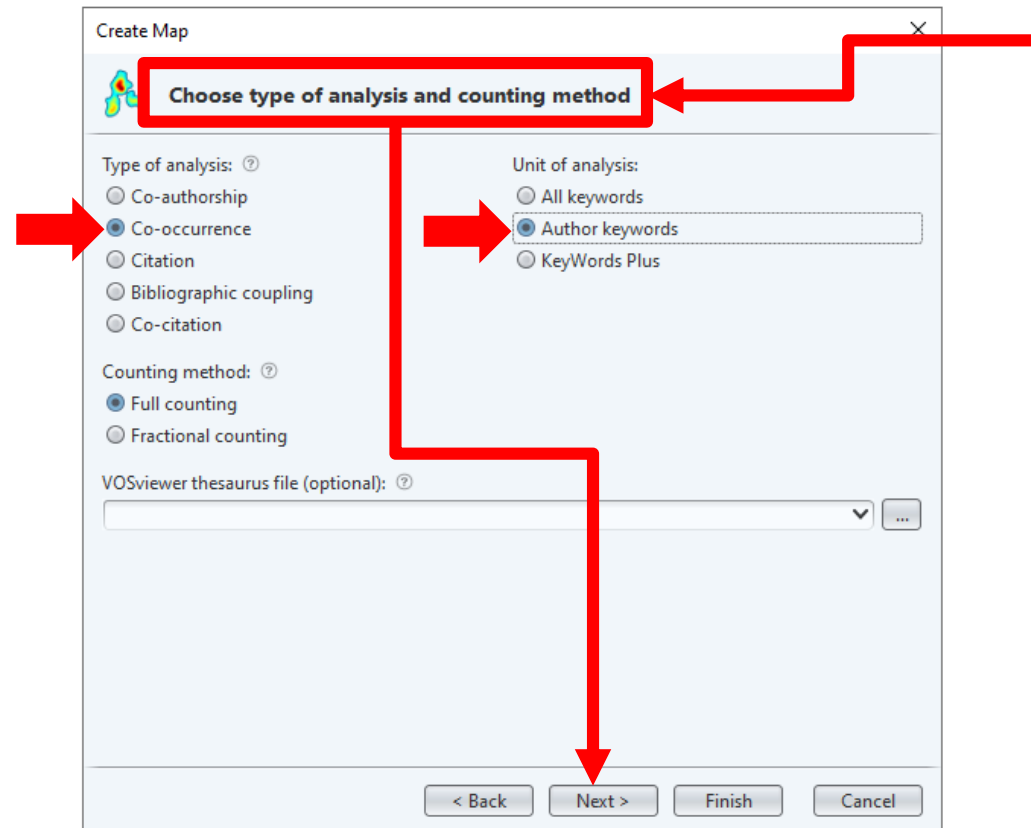
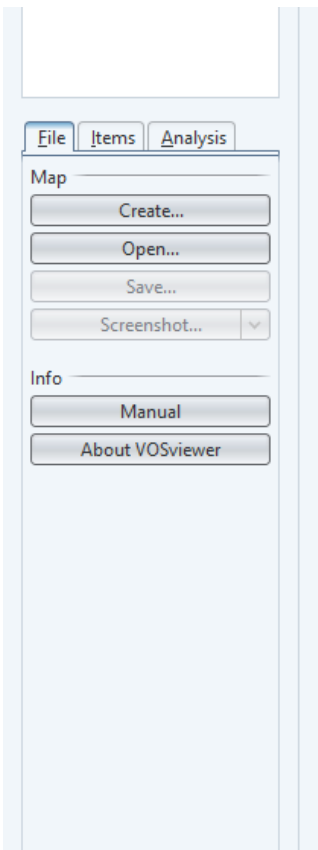
6. Select which database you are going to analyze. Remember that for WoS the file format is 'TXT' and for Scopus the file format is 'CSV'.

7. After choosing which database and the corresponding file, click here to upload the file.

8. After loading the file click 'Next'

Mapping relationship networks

Choose the type of analysis

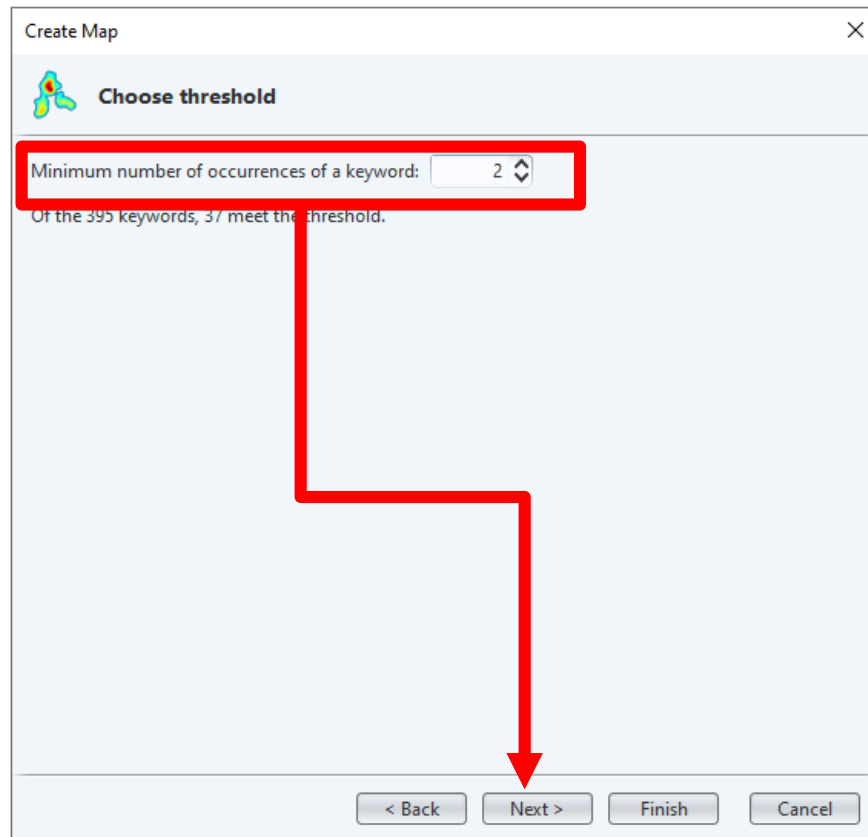
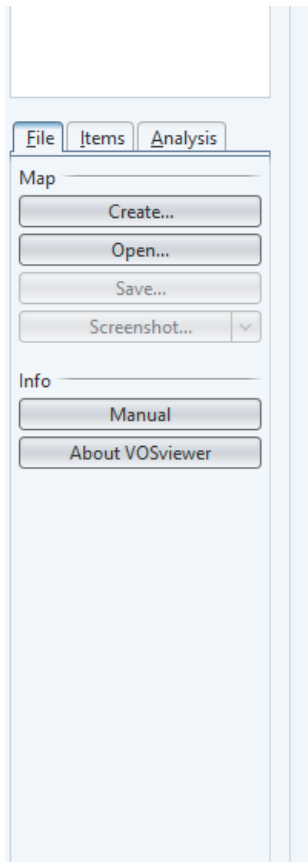


You can choose which type of analysis and which analysis unit, then click "Next".

In this example we will create the co-occurrence network of the author's keywords.

Mapping relationship networks

Importing files in VOSviewer

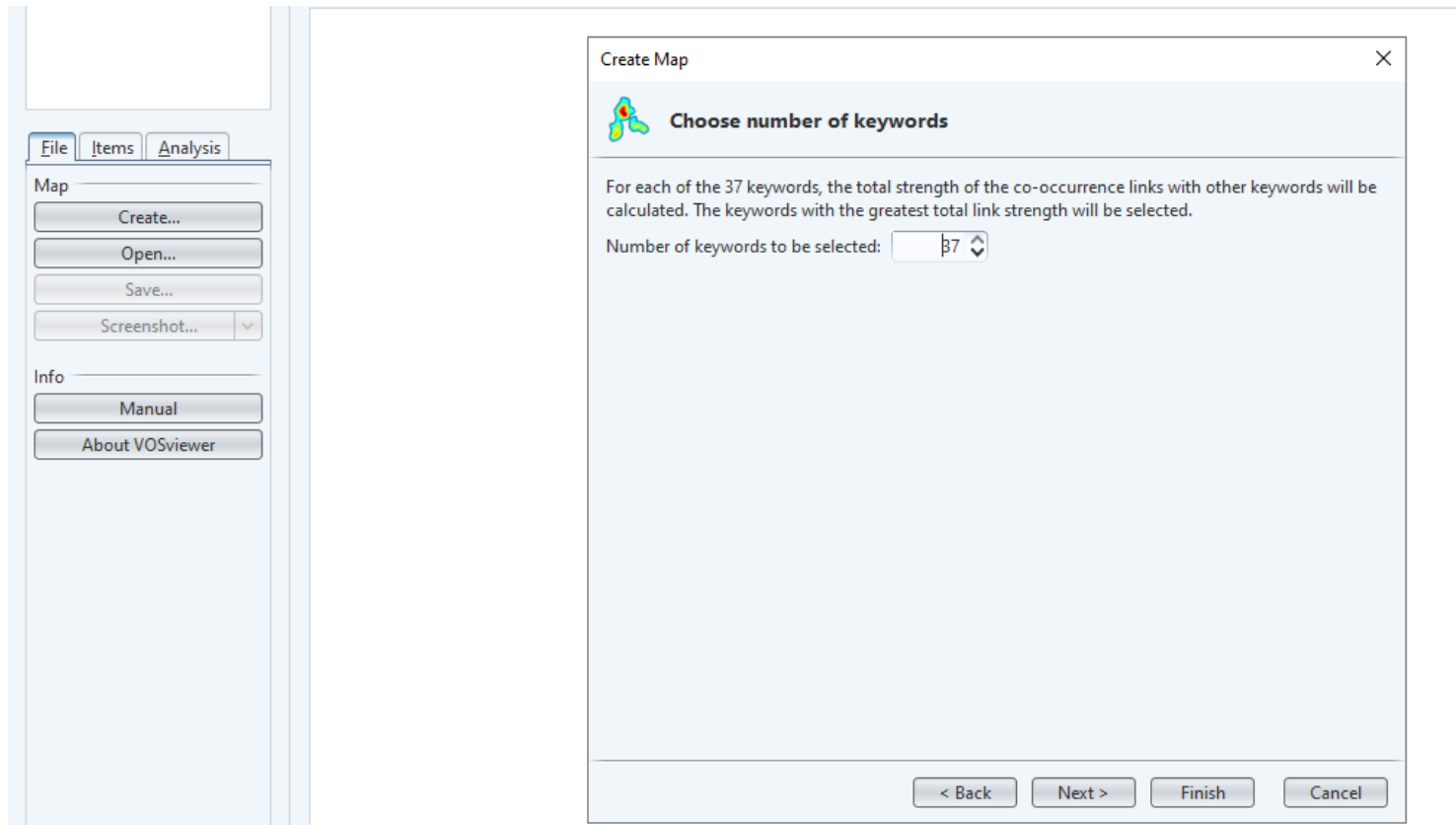


You can choose the minimum number of occurrences of a keyword. The default of the software is 5, but you can change it.

Decreasing or increasing this number generates different networks.

Mapping relationship networks

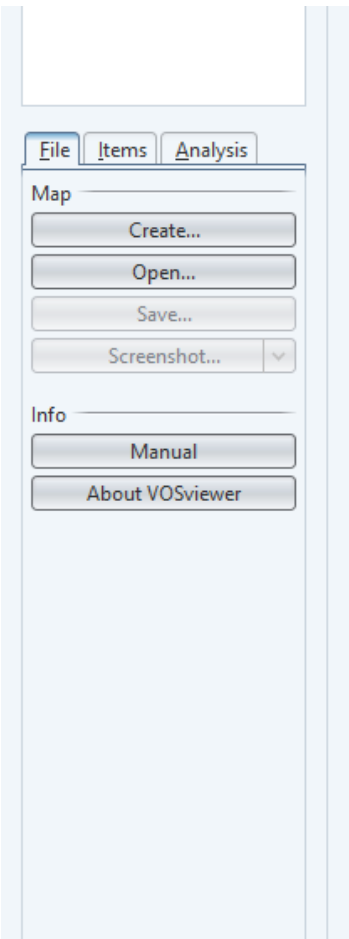
Importing files in VOSviewer



We can choose a limit for how many keywords will be selected for the network. The keywords will be ordered by link strength.

Mapping relationship networks

Choose the keywords



Create Map ×

Verify selected keywords

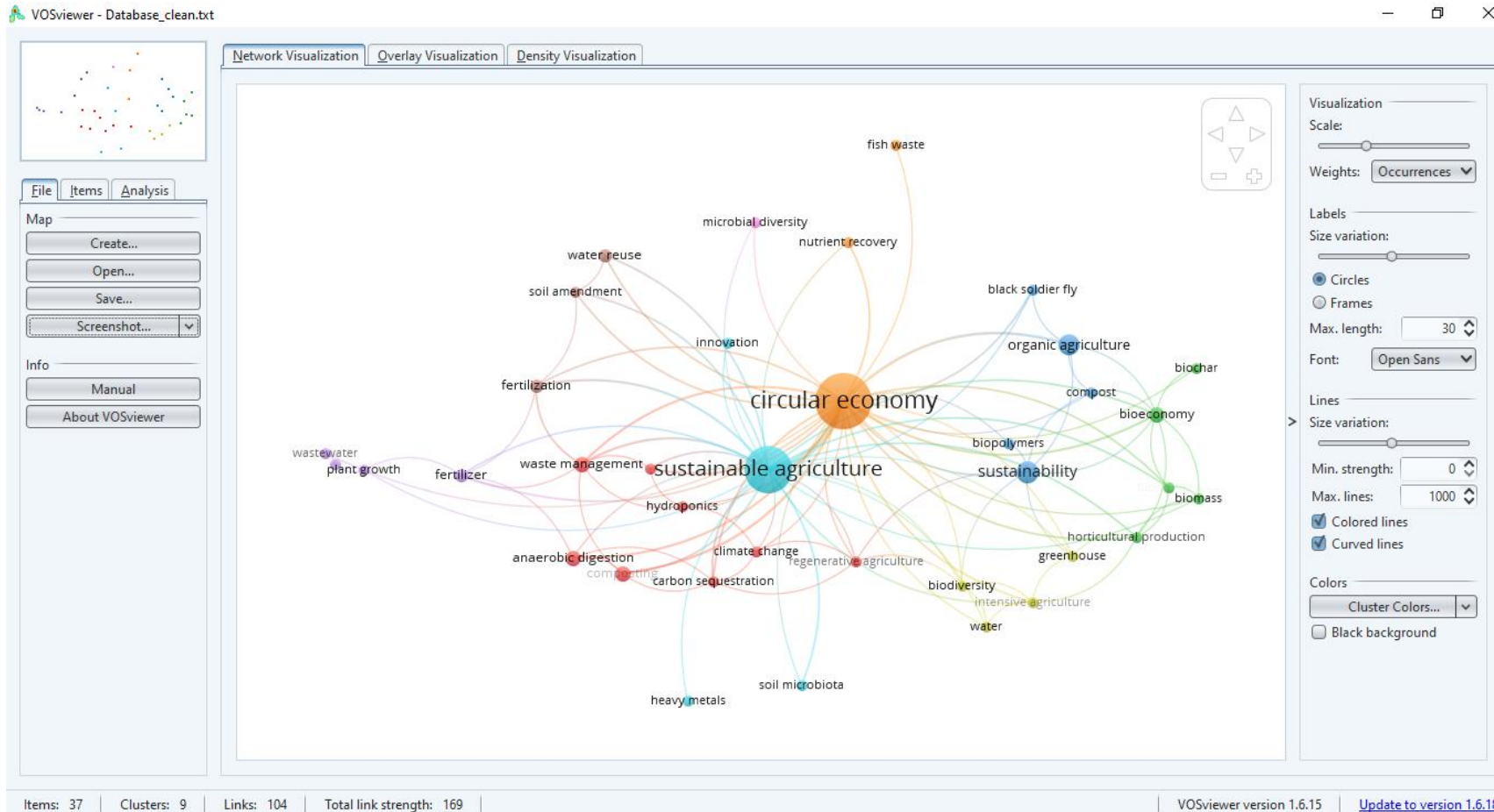
Selected	Keyword	Occurrences	Total link strength
<input checked="" type="checkbox"/>	circular economy	49	81
<input checked="" type="checkbox"/>	sustainable agriculture	36	68
<input checked="" type="checkbox"/>	bioeconomy	4	12
<input checked="" type="checkbox"/>	waste management	4	12
<input checked="" type="checkbox"/>	composting	4	9
<input checked="" type="checkbox"/>	fertilization	3	9
<input checked="" type="checkbox"/>	horticultural production	2	9
<input checked="" type="checkbox"/>	sustainability	8	9
<input checked="" type="checkbox"/>	carbon sequestration	2	8
<input checked="" type="checkbox"/>	fertilizer	3	8
<input checked="" type="checkbox"/>	intensive agriculture	2	8
<input checked="" type="checkbox"/>	organic agriculture	7	8
<input checked="" type="checkbox"/>	anaerobic digestion	4	7
<input checked="" type="checkbox"/>	biorefinery	2	7
<input checked="" type="checkbox"/>	biodiversity	2	6
<input checked="" type="checkbox"/>	regenerative agriculture	2	6
<input checked="" type="checkbox"/>	soil amendment	2	6
<input checked="" type="checkbox"/>	soilless culture	2	6
<input checked="" type="checkbox"/>	biomass	2	5
<input checked="" type="checkbox"/>	climate change	2	5

This screen allows you to choose which keywords will or will not appear in your network.

Usually keywords like 'articles', 'review' or other words that are not directly related to your research topic can be removed from the network.

Mapping relationship networks

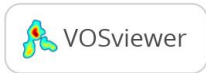
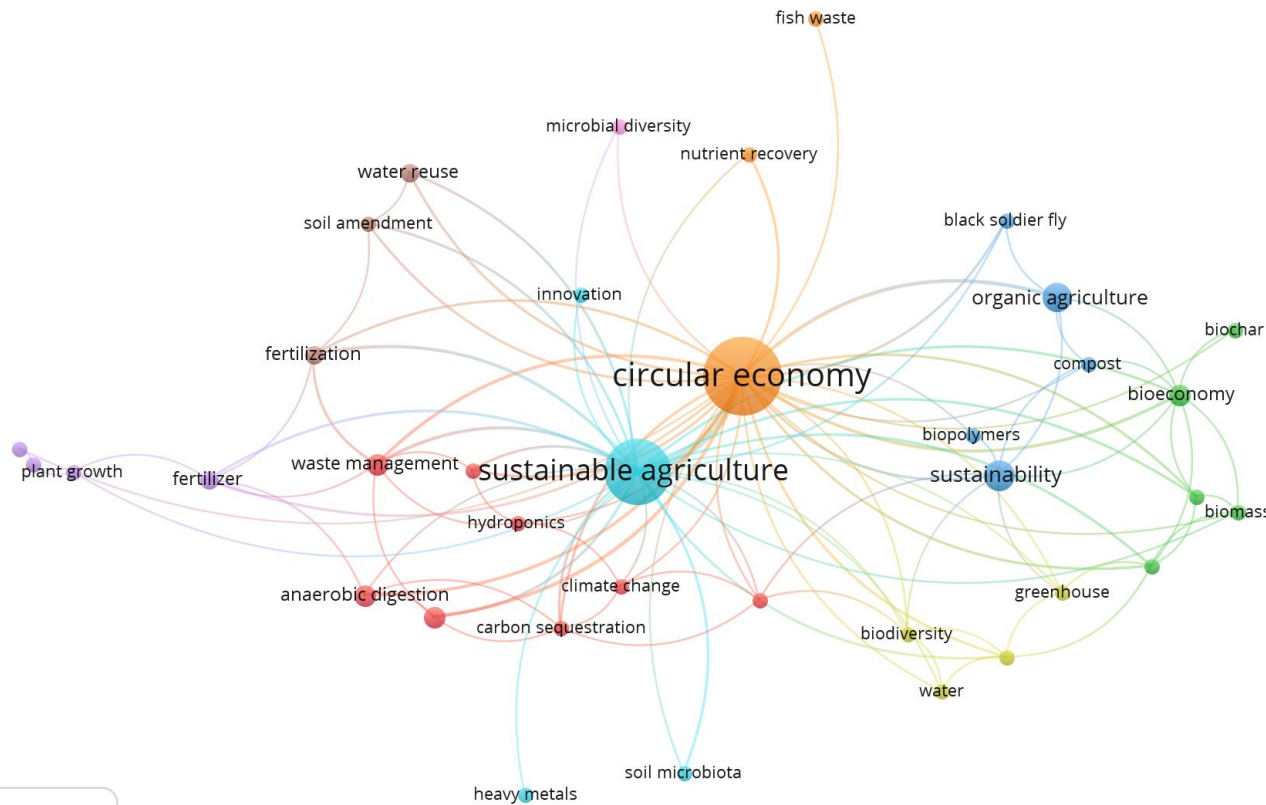
Overview of the keyword co-occurrence network



Mapping relationship networks

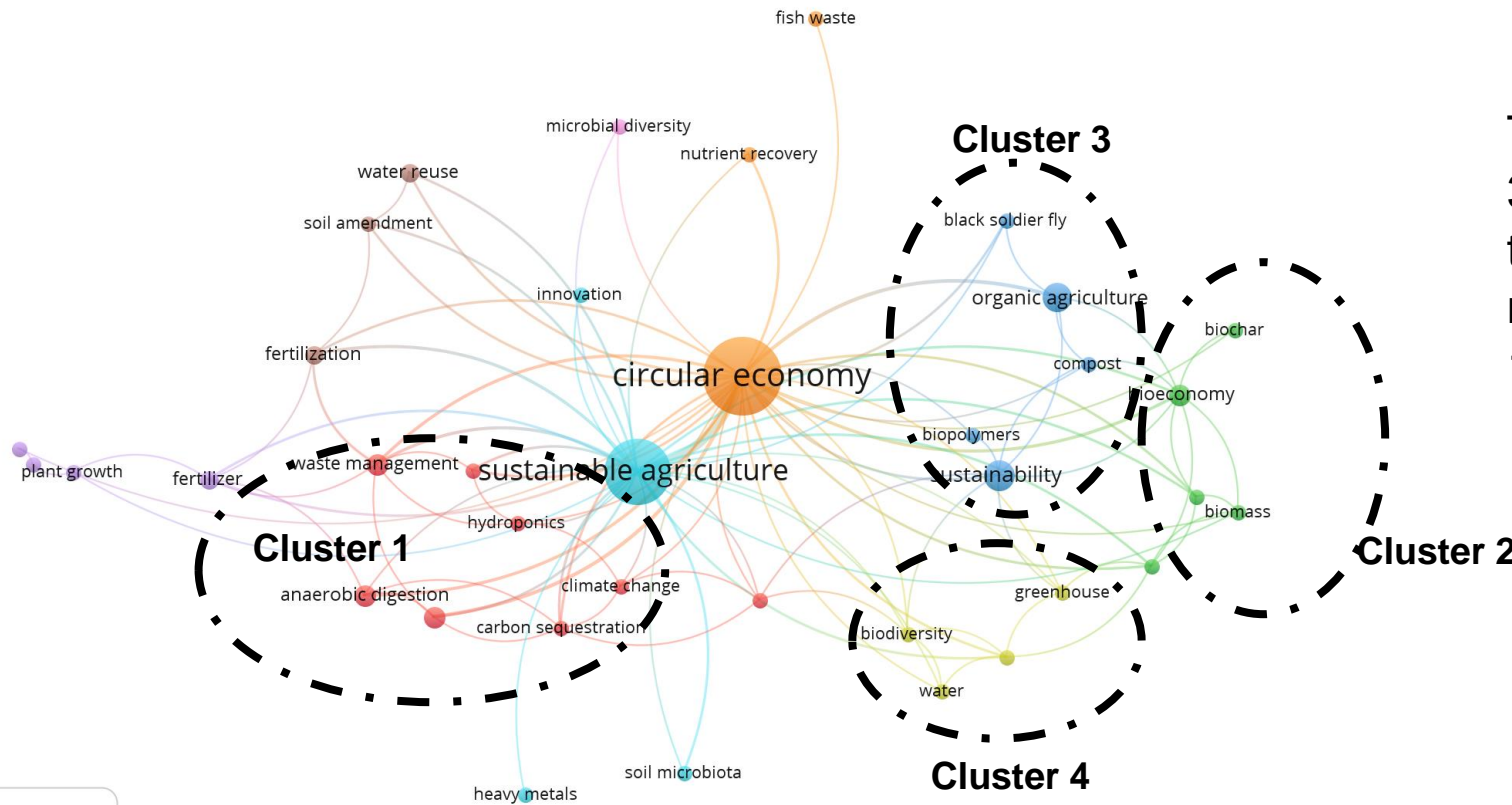
Overview of the keyword co-occurrence network

VOSViewer allows the exporting of the network as a image file.



Mapping relationship networks

Overview of the keyword co-occurrence network



The network is composed of 37 keywords of the author that occur at least twice. This network has 9 clusters and 104 links

Adjusting the 'Database.xlsx' file for use in the VOSviewer software

- Open the file "Database.xlsx" - **it is important that this file does not contain duplicates.**
- Click on 'File' then choose "save as". Save the file in Text format (MS-DOS).
- Now this file can be "read" by VOSviewer as if it were a file from the Web of Science because it has the same format.

Bibliometric analysis

Reference that addresses the main indicators of bibliometrics

Article

Bibliometric Methods in Management and Organization

Ivan Zupic¹ and Tomaž Čater¹

Abstract

We aim to develop a meaningful single-source reference for management and organization scholars interested in using bibliometric methods for mapping research specialties. Such methods introduce a measure of objectivity into the evaluation of scientific literature and hold the potential to increase rigor and mitigate researcher bias in reviews of scientific literature by aggregating the opinions of multiple scholars working in the field. We introduce the bibliometric methods of citation analysis, co-citation analysis, bibliographical coupling, co-author analysis, and co-word analysis and present a workflow for conducting bibliometric studies with guidelines for researchers. We envision that bibliometric methods will complement meta-analysis and qualitative structured literature reviews as a method for reviewing and evaluating scientific literature. To demonstrate bibliometric methods, we performed a citation and co-citation analysis to map the intellectual structure of the *Organizational Research Methods* journal.

Organizational Research Methods
2015, Vol. 18(3) 429-472
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DOI: 10.1177/1094428114562629
orm.sagepub.com


Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429–472.

<https://doi.org/10.1177/1094428114562629>

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- Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429–472. <https://doi.org/10.1177/1094428114562629>