Using the VOSviewer software for bibliometric analysis

Ana Lúcia Fernandes
Reviewer:
PhD. Ticiana Braga de Vincenzi
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."

Van Eck, N., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *scientometrics*, *84*(2), 523-538.

VOSviewer software

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

Database searches: Web of Science (WoS) and Scopus

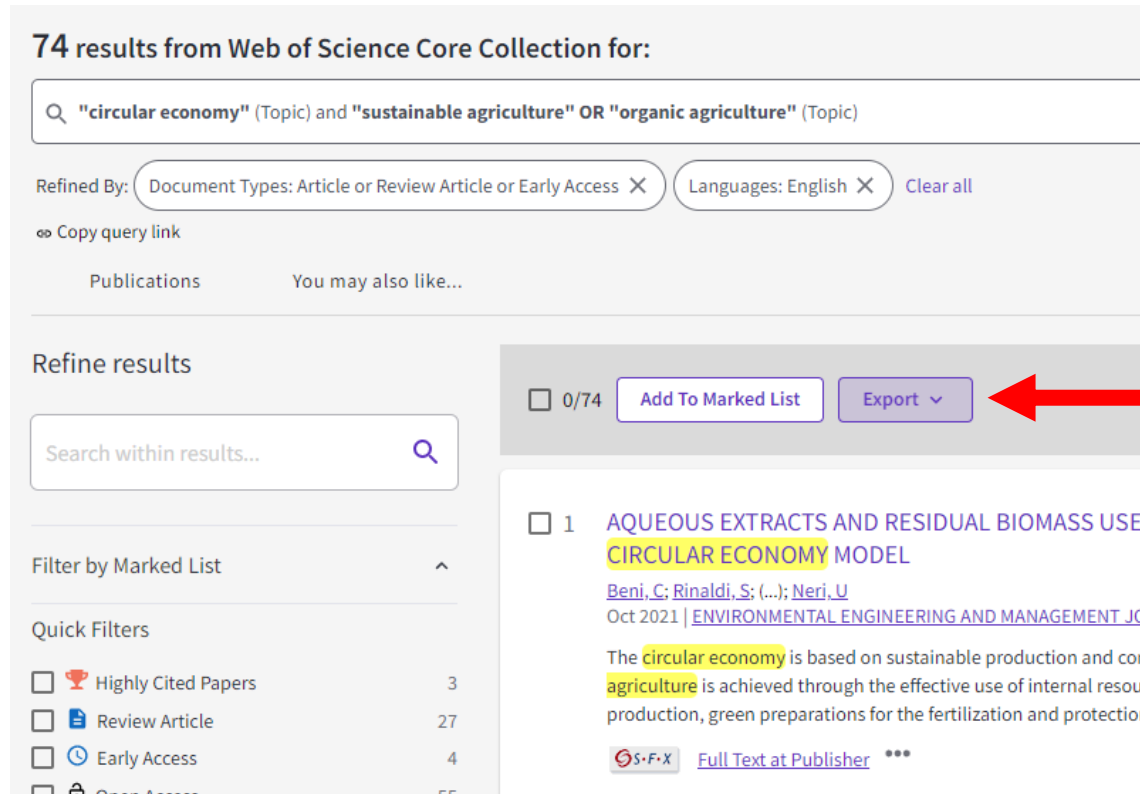# Database searches: Web of Science (WoS) and Scopus

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.

Step 1: Click "export".

Database searches: Web of Science (WoS)

Exporting document information

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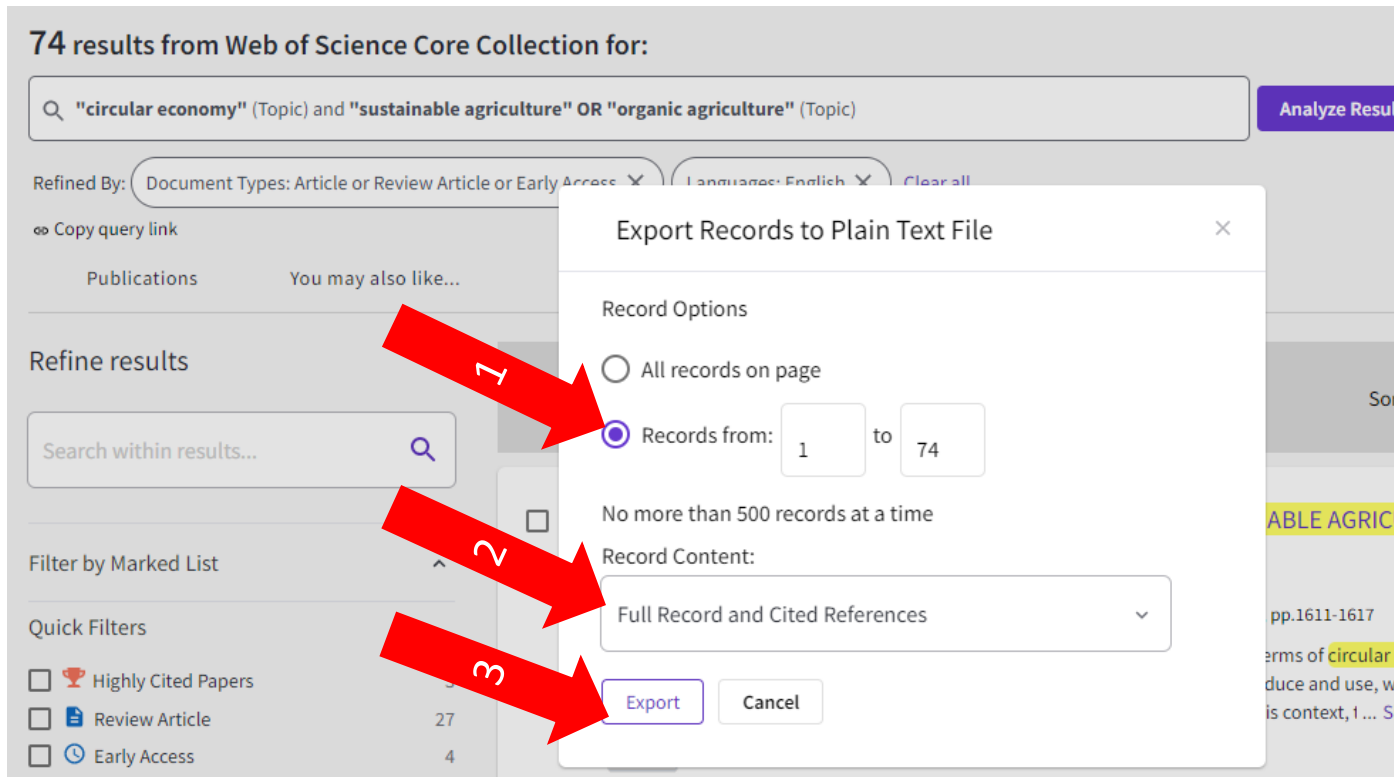
1. Click "records from 1 to <TOTAL OF RESULTS>".
2. Select the option **Full record and cited references** under record content.
3. Then click "export".

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.
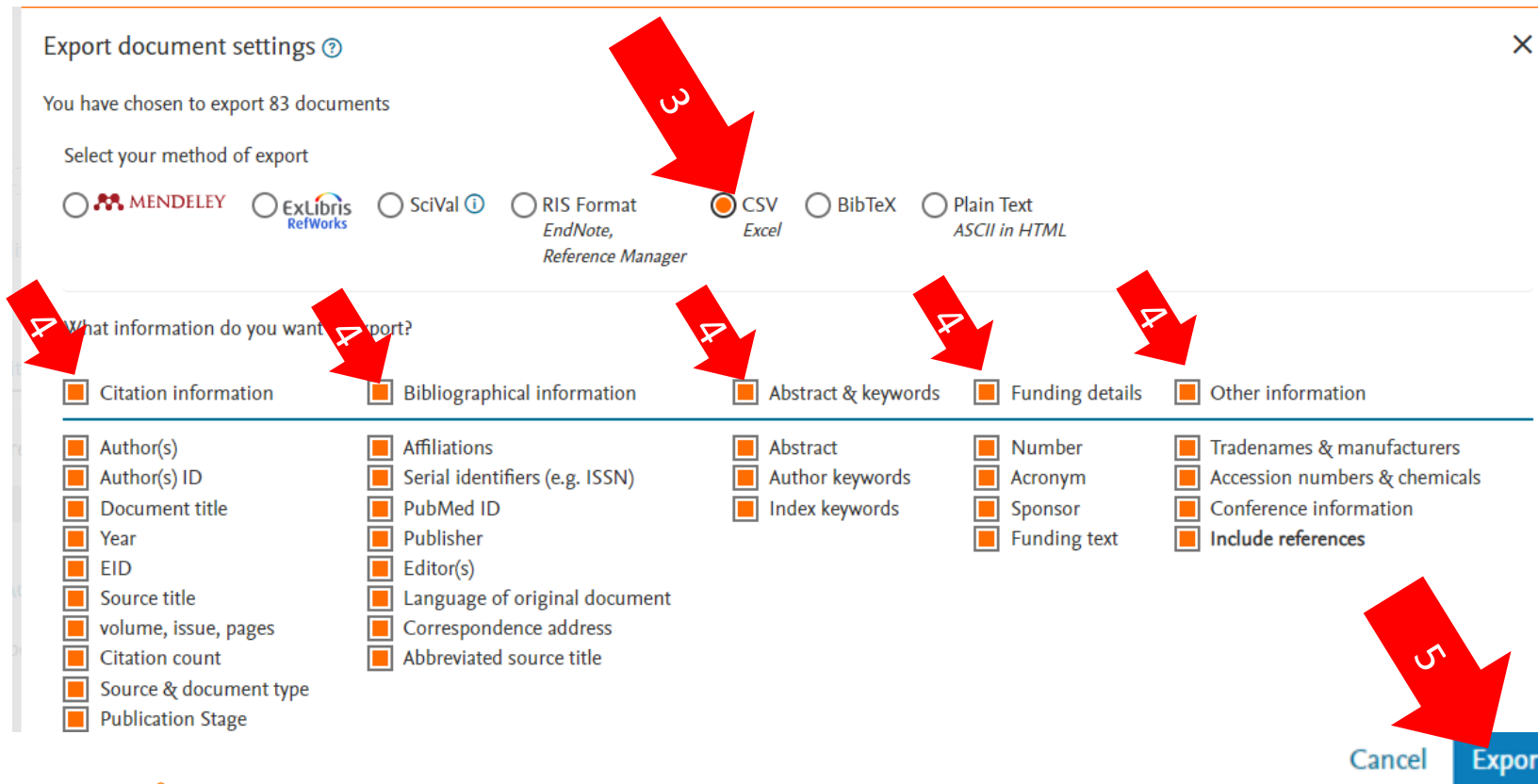

1. **First step:** Click "all".
2. **Second step:** Click "export".

Scopus®

UNIVERSITY OF SAO PAULO
PPGEP - Graduate Program in Production Engineering
PRO5972 Business Sustainability (BS)

PPGEP PRO USP

Database searches: Web of Science (WoS) and Scopus
Export document information

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.

Scopus®

Mapping relationship networks

Mapping relationship networks

Importing files in VOSviewer
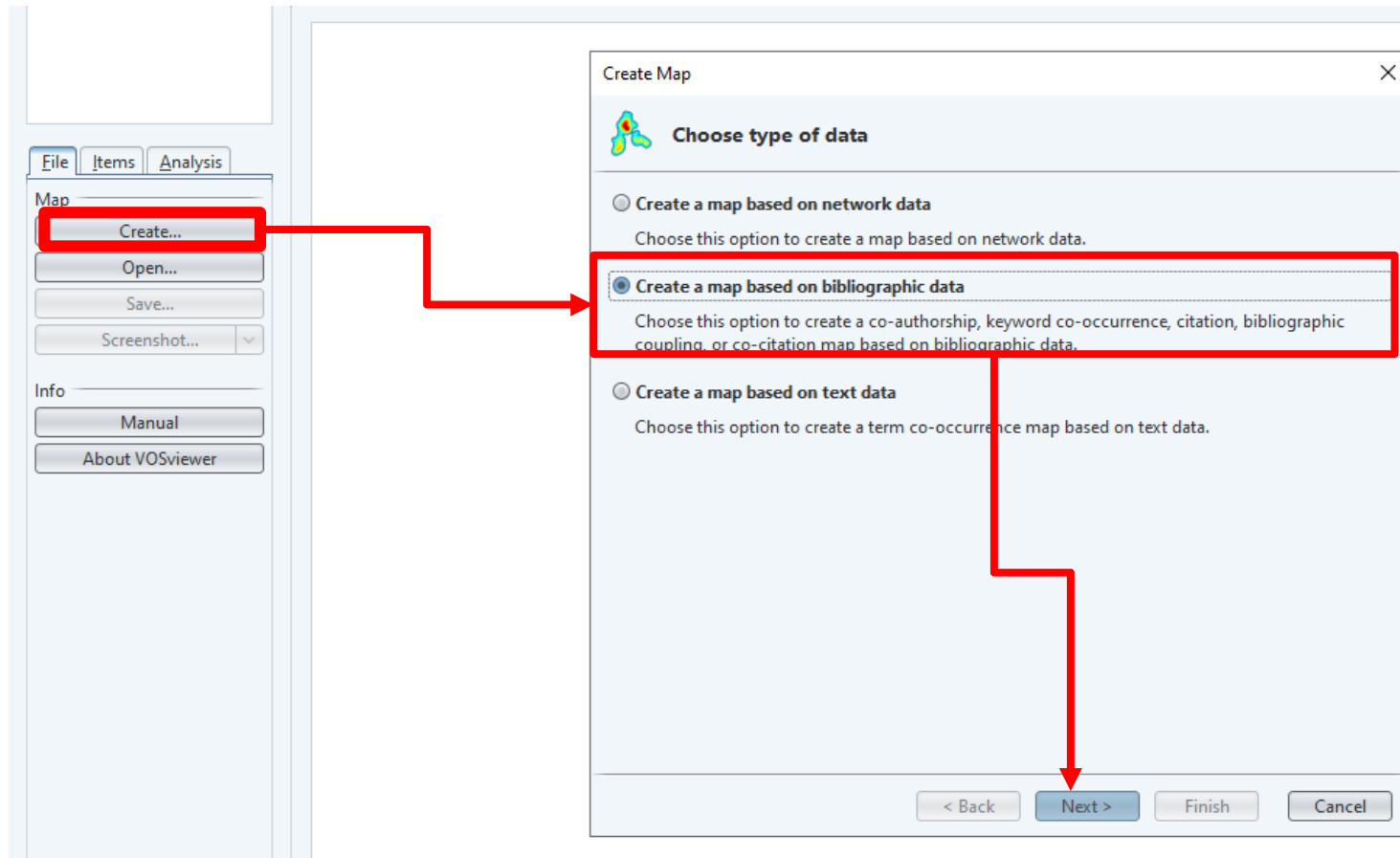
1. Click "**Create**".
2. Click "**Create a map based on bibliograhic data**".
3. Click "**Next**";

Mapping relationship networks

Importing files in VOSviewer
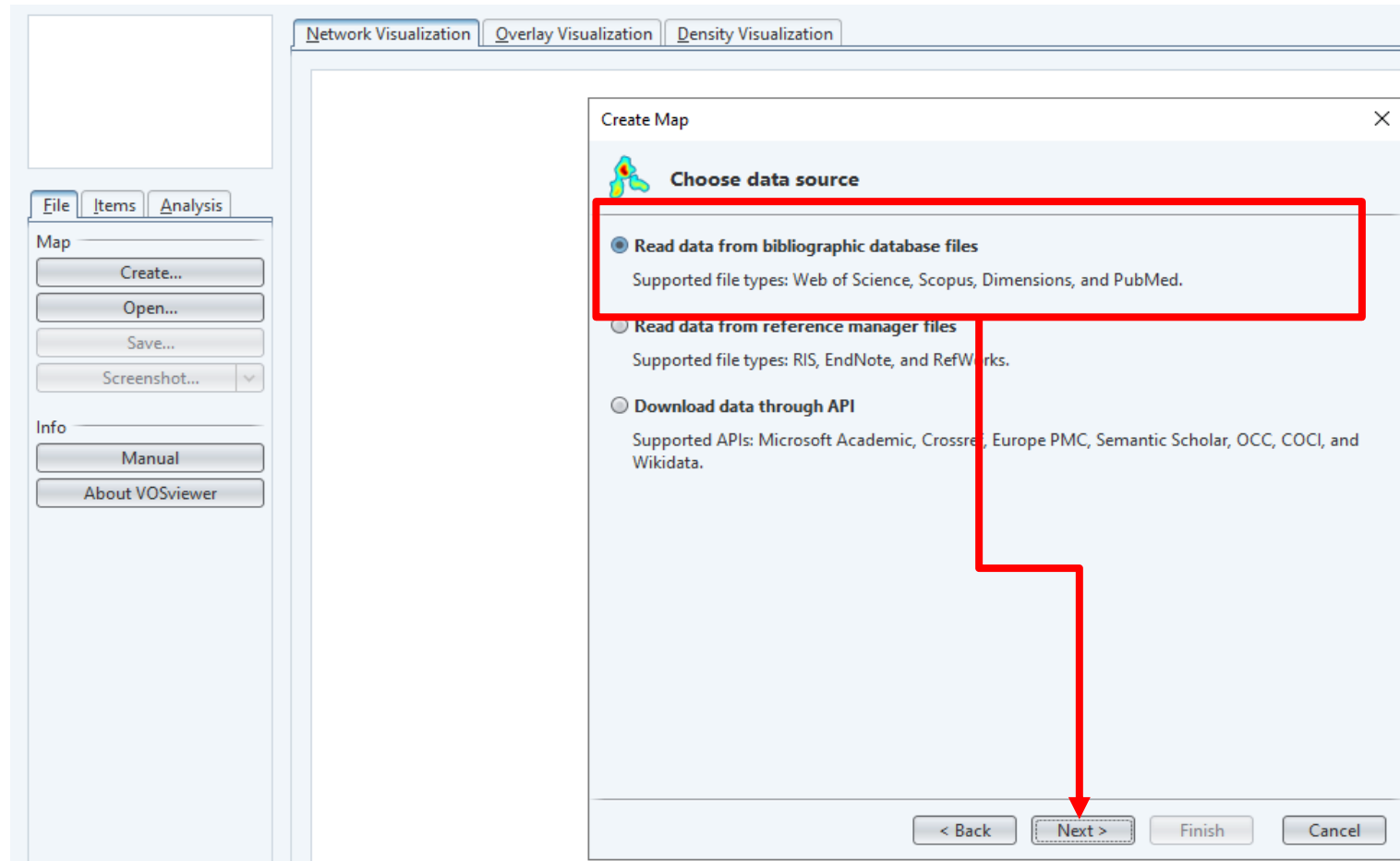
4. Click "**Read from bibliografic databases files**";
5. Click "**Next**";

Mapping relationship networks

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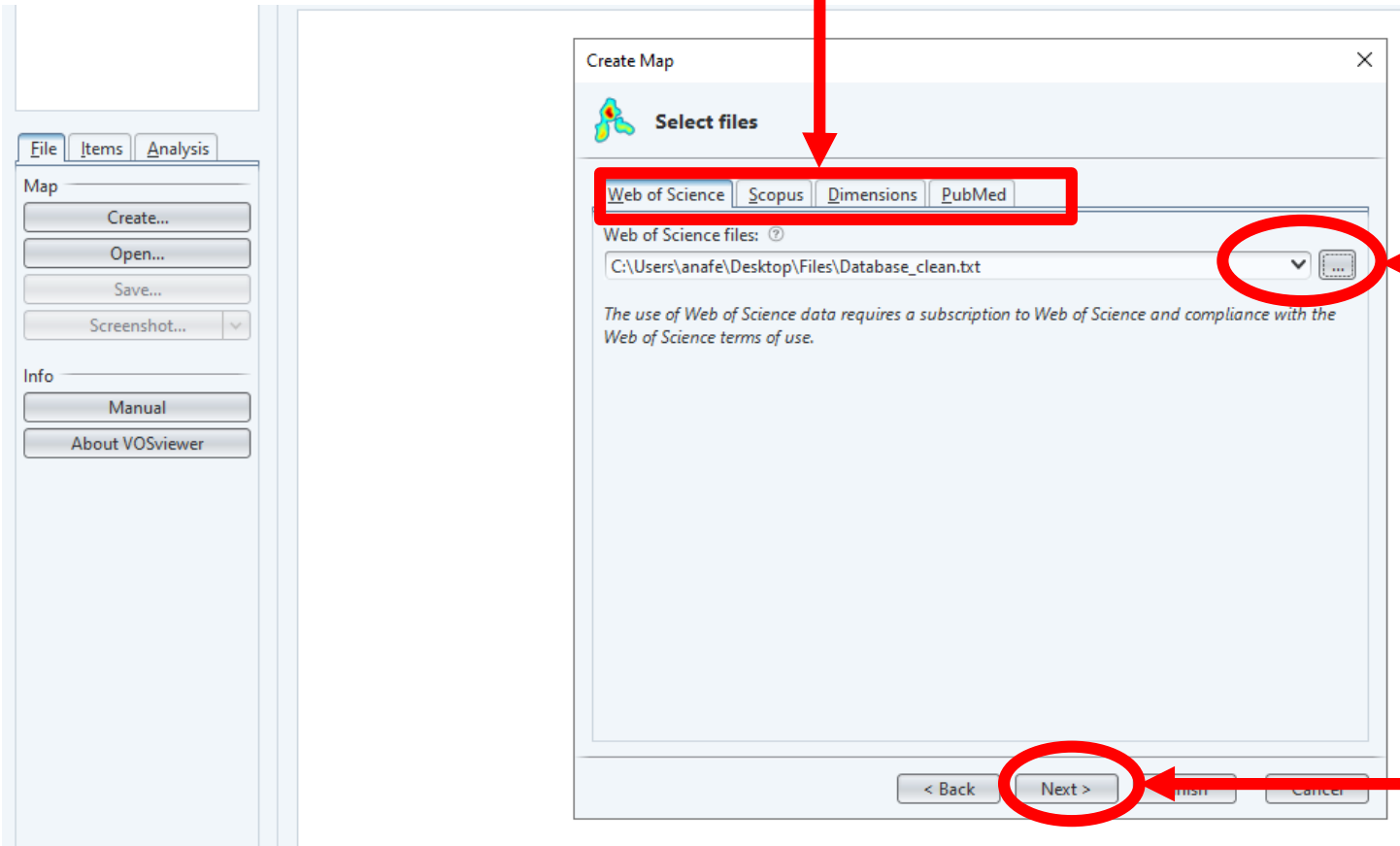
6. Select which database you are going to analyze. Remember that for WoS the file format is 'TXT' and for Scopus the file format is 'CSV'.

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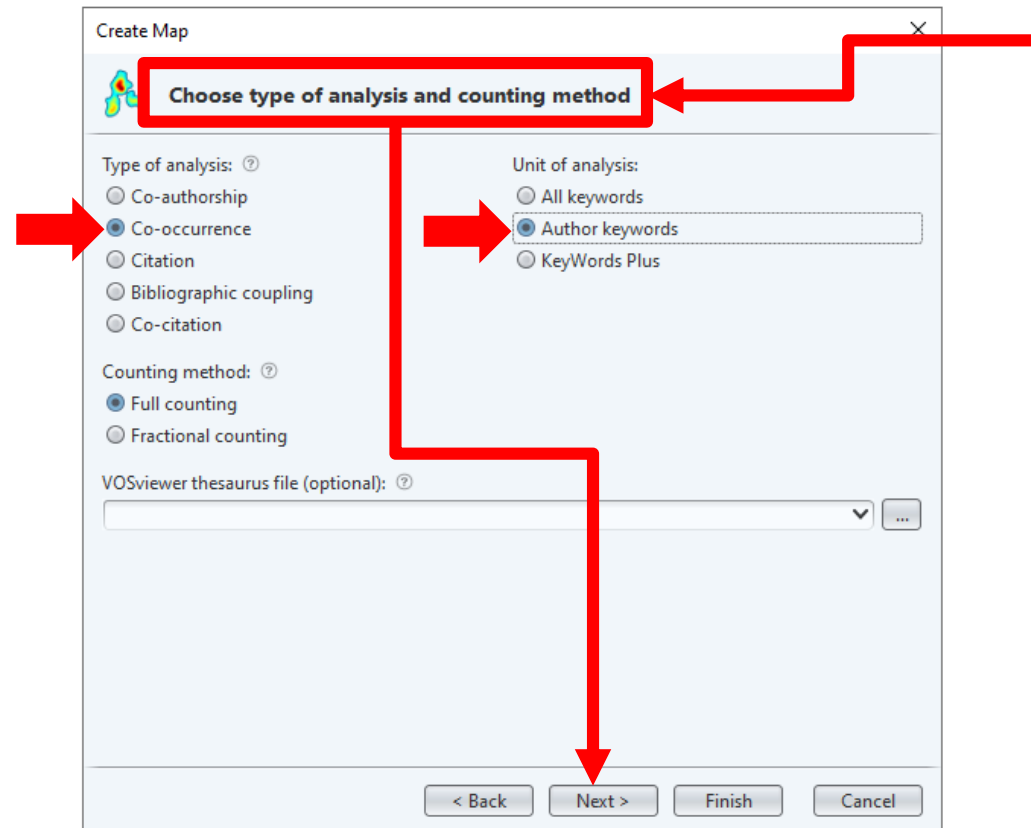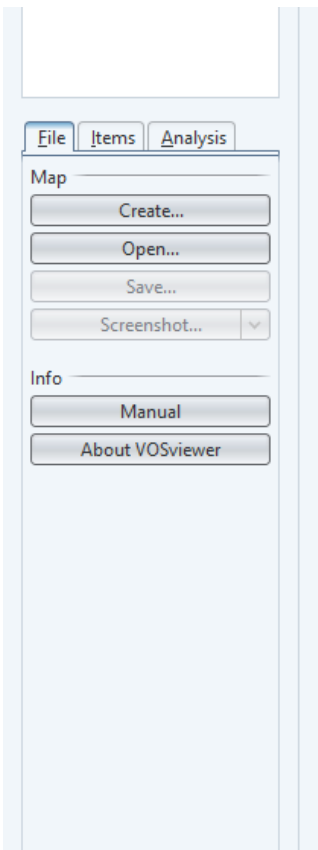
You can choose which type of analysis and which analysis unit, then click "**Next**".

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

Zupic, I., & Čater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429–472. https://doi.org/10.1177/109442811456262

Mapping relationship networks

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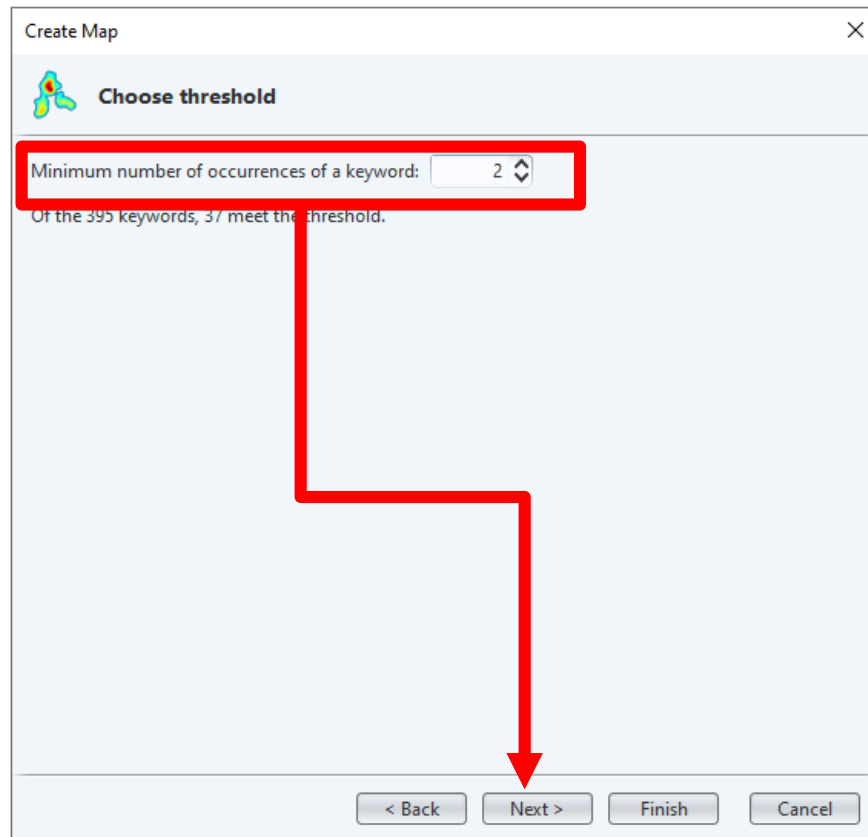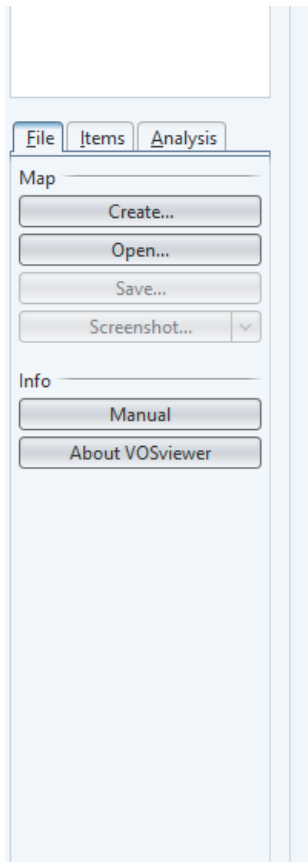
You can choose the minimum number of occurrences of a keyword.
The default of the software is 5, but you can change it.

Decreasing or increasing this number generates different networks.

Mapping relationship networks

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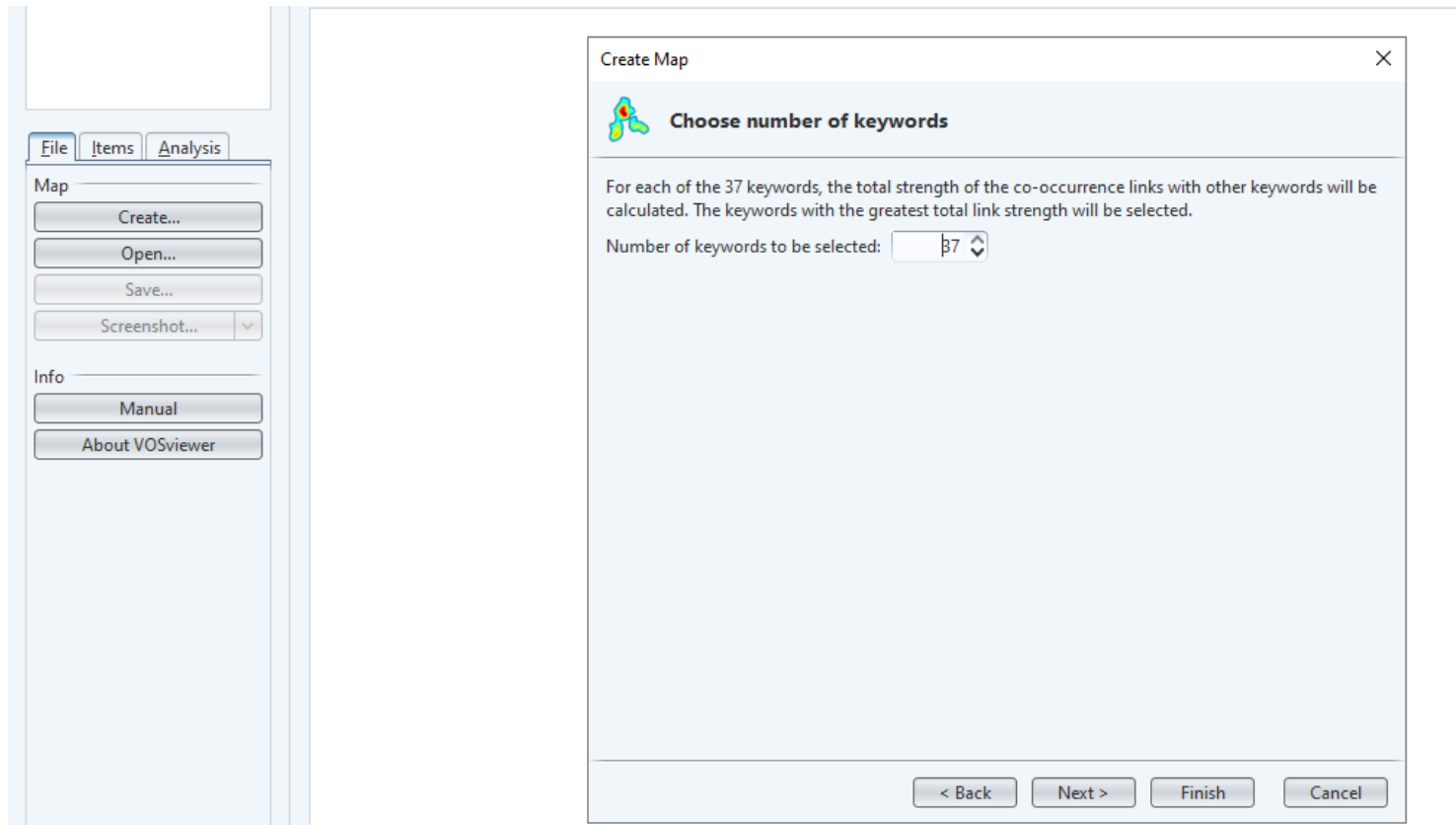
We can choose a limit for how many keywords will be selected for the network. The keywords will be ordered by link strength.

Mapping relationship networks

Choose the keywords

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
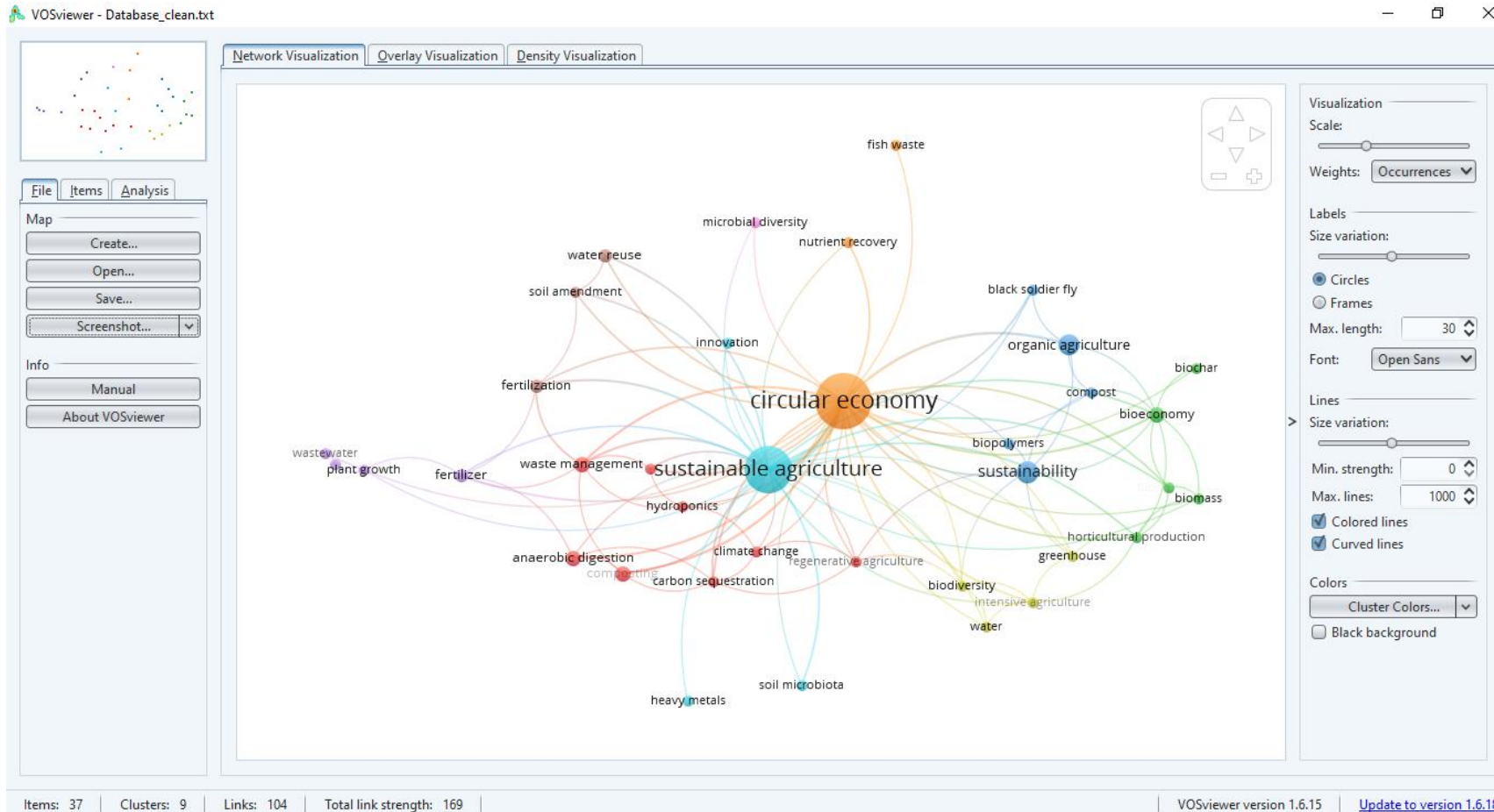
Mapping relationship networks

Overview of the keyword co-occurrence network

VOSViewer allows the exporting of the network as a image file.
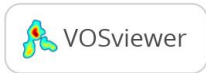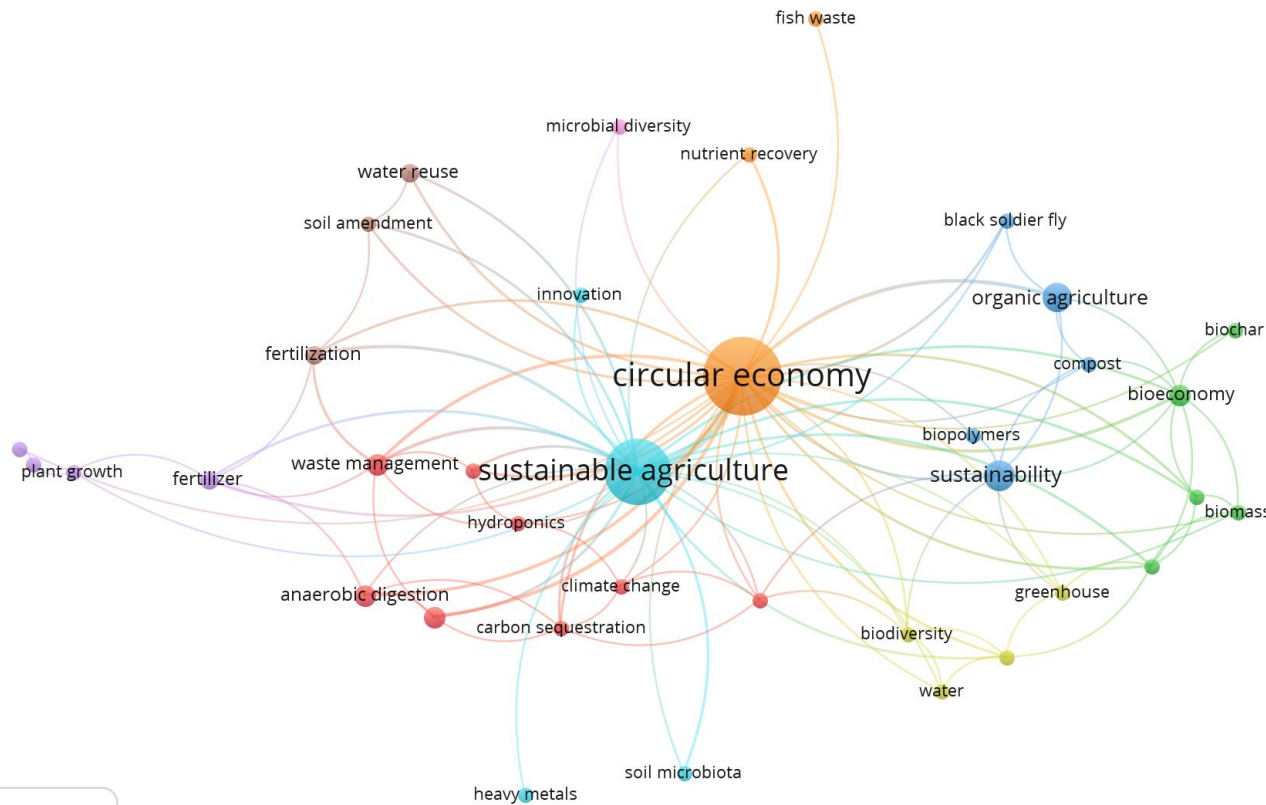
Mapping relationship networks

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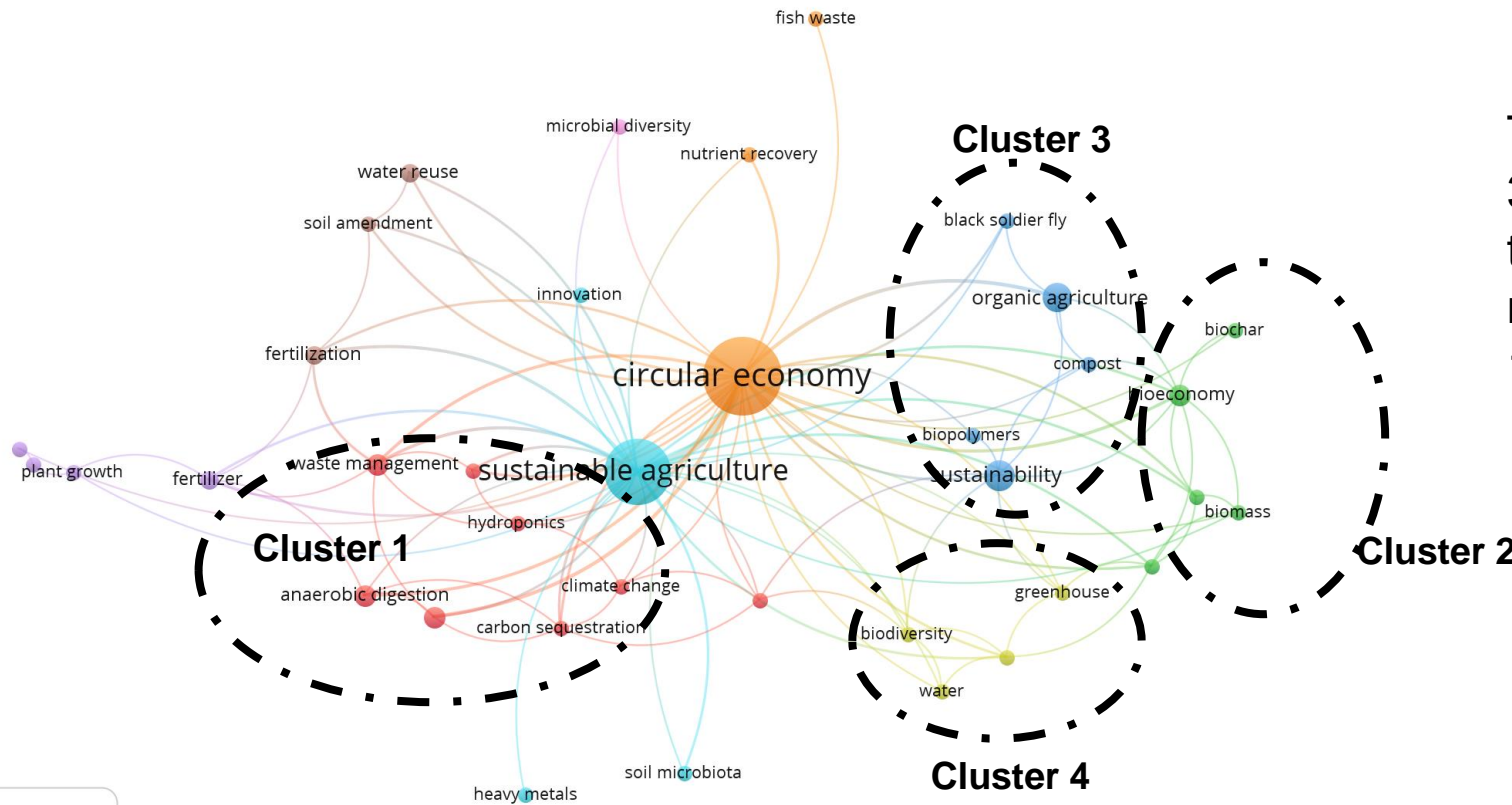
The network is composed of 37 keywords of the author that occur at least twice. This network has 9 clusters and 104 links

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

Organizational Research Methods
2015, Vol. 18(3) 429-472
© The Author(s) 2014
Reprints and permission:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1094428114562629
orm.sagepub.com

$SAGE

Ivan Zupic[1] and Tomaž Čater[1]

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.

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

References

- Van Eck, N., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *scientometrics*, *84*(2), 523-538.

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