Systematic Review and Bibliometrics: A Step-by-step Guide

Using the EndNote® tool.

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Introduction:
The purpose of this guide is to assist the development of a portfolio of major bibliographic concepts, constructs, authors, and other relevant issues on a topic to be researched.

As a methodological procedure, has established three phases: 1 Research Protocol Definition 2 Data Analysis and 3. Synthesis. These, decomposed into activities: 1.1 Search strategy, 1.2 Query in the database, 1.3 Organize Bibliographies, 1.4 Standardize the selection of articles 1.5 Portfolio of articles composition 2.1 Data consolidation and 3.1Synthesis and reporting.

For each activity, a sequence

This step-by-step directive has the model the graph below.

1) Chart Model of the Process of Systematics Review and Bibliometrics

![Chart Model of the Process of Systematics Review and Bibliometrics](image)

**Figure 1 - Description of the Steps of Systematic Review and Bibliometrics**

Source: Authors.
Step ZERO:

There are many scientific databases which one should I choose to my research? It’s a question that many new researches make or our students made for us.

Each database has its style, area of concentration and focus.

We recommend learning more about the profile of the databases that you have access. PS: Check the access with your university library.

To learn more:

Read the description of the databases and choose the most relevant to your research as shown in Figure 2

![Figure 2 - CAPES Portal: List of Databases.](image)

Source: Authors.

Once the databases are chosen, passes to the definition of the search strategy.

Defines the keywords of your research topic and the use of logical operators for the junction of words and / or sentences.

For this example we will use the search terms “innovation” and “organization”. Looking each of the two sentences respectively (which is represented by the quotes) and containing the two sentences, logical operator (and).

Normally we use the Scopus database because it has a “intelligence” in indexing articles and also for being interdisciplinary.

It is a good option to start with this database to check if the keywords are aligned with your search.
After returning of the files and a brief reading of the abstracts and keywords it’s possible to: certify if the keywords of the research are aligned and capture new keywords, including them in the search by adding the logical operator (or).

Once certified that the search conforms, can be passed to other databases. Always maintaining the same, query, search of all databases in order to ensure consistency.
Step 1 - Search in Databases

At this step we are going to show how to make the search in some databases.  
*(Do you have any doubts on how-to proceed at other databases not listed? Please contact us, and request to add the database on this guide)*

1.1 Scopus.

Enter the search query defined previously. Select the type of document you want. Normally we choose articles and review articles *(Document Type)*

You can choose the areas of research. For example in the area of engineering, if not biomedical engineering, that is no need to have marked the area of life sciences and health. The areas chosen will depend on the subject being researched. In this example we chose to keep all areas.

After the selections click search, as shown in Figure 3.

![Figure 3 - Search at Scopus® database](image)

Source: Authors.

The database will return the search results as Figure 4
Figure 4 - Research results from Scopus®

Source: Authors.

To export to EndNote®, click at the All option to select all documents found in the search. Then export ... that will go next Figure. The All and Export options are just below the result of the number of documents.

For this example only a few documents were selected. See Figure 5.

Figure 5 - Scopus® - Exporting to EndNote®

Source: Authors.

Choose the RIS format that is accepted by EndNote® and the Output complete format then export... save the file, as shown in Figure 6.
Then import into EndNote®. (We shall see at Figure 10 below)

As we show how to conduct the search in the data Scopus®, will do the same for the databases Web of Knowledge®, Ebsco®, Scielo®, Wiley®, Copendex® and Emerald®.

**REMEMBER:** To use the same strategy and query for the other bases.
1.2 Web Of Knowledge® (ISI)

Paste the same query in the search field by setting the other fields for compatibility with other databases if you have modified the default and click on SEARCH, resulting in Figure 7.

![Figure 7 - Search result from ISI - Web of Knowledge® database](image)

Source: Authors.

To export the results, go to the bottom of the page click records and enter the range of 1 to xxx where xxx is the total number of documents found in this case 1-11.

In Step 2 click plus Abstract. Step 3 Then click on save to EndNote®, as Figure 8.

![Figure 8 - ISI® Export Steps](image)

Source: Authors.

Save the file accept by the EndNote®, as Figure 9.
Figure 9- Saving the references

Source: Authors.
1.3 Ebsco®

Paste the same query in the search field by adjusting the other fields for compatibility with other bases if you have modified the default and click on Search, According to Figure 10, resulting in Figure 11.

Usually mark up the options as: full-text only, also search the full text of articles.

Other options may also be used, such as time interval, language, and other filters. *Stick to maintain compatibility of the filters used in other bases.*

![Figure 10 - Search at Ebsco® database](image)

Source: Authors.

![Figure 11 - Search results from Ebsco®](image)

Source: Authors.

To export the articles of Ebsco® it is necessary to save them in a folder, for this, click share, and then add in the folder. As Figure 12.
Figure 12 - Saving documents at a folder to export

Source: Authors.

To enter the folder, click on the top tab folder, as Figure 13.

Figura 1 – Localizando a pasta

Figure 13 - Entering at the folder

Source: Authors.

Then click select all items, as shown in Figure 14, then export button in the right corner as shown in Figure 15.
Figure 14 - Selecting the files to EXPORT
Source: Authors.

Figure 15 - Exporting the references from Ebsco®
Source: Authors.

Appeared on the screen the opting to export. Mark RIS format (first save option) Figure 16, than click on save, which will make the download screen to popup or be at the bottom of the browser Figure 17.
Figure 16 - Selecting how to export

Source: Authors.

Figure 17 - Saving the export file

Source: Authors.

Choose the option to save then import the software to organize your references or already import into EndNote®.
1.4 Scielo®

Enter the search query defined previously. Normally, it is chosen by all indexes and the regional area.

After the selections click Search, as shown in Figure 18.

Figure 18 - Searching at Scielo®

Source: Authors.

After the submission of the search, Scielo® will return what was found. Click at select all and then click Send results. As can be seen in Figure 19.
Will open a screen to choose the option, click the Export tab, and select the "your selection" then click the gray button “export option”. As can be best seen in Figure 20.

Source: Authors.
Choose the option to save then import the software to your references organizer software or already import into EndNote®, as shown in Figure 21 below.

Figure 21 - Save / Import references from Scielo®

Source: Authors.
1.5 Wiley®

Visit the website of Wiley®, [http://onlinelibrary.wiley.com/](http://onlinelibrary.wiley.com/), Figure 22. To be able to save the search and receive new articles warning is required to have a login at the site. To do this, click NOT REGISTERED? In the upper right corner. Resulting in Figure 23 Fill out and submit the data to the site. If you have already joined or did not want to receive alerts, skip to the next step Login, Figure 24.

Source: Authors.
Figure 23 - Wiley® Registration

Source: Authors.

After registration login to the system by entering your email and password. Once logged in, Figure 24 Click on Advanced Search. In the upper left corner at the Search.
When you click on Advanced Search, will be able to do research Figure 25, Paste the same query in the search field by adjusting the other fields for compatibility with other databases if you have modified the default and click on Search. Note that there is a choice of dates and date range.

Source: Authors.

Figure 24 - Logedin at Wiley®

Source: Authors.

Figure 25 - Wiley® Advanced Search

Source: Articles.
By clicking Search will return to the screen with the search results as Figure 26. To export the items, click Select All, resulting in Figure 28.

![Wiley Online Library Search Results](image)

**Figure 26 - Wiley® results**

Source: Authors.

Click on the *Export Citation* tab to export.

Unfortunately, it exports Wiley® per page, or from 20 to 20 items. Soon, you will have an extra job to select them by page. According to Figure 29, resulting in Figure 30.

At this point, you have the option to create an alert with this research. For this, you must be logged in and click *Save search* in the upper right corner, near the GO, Figure 27.

By clicking *Activate search alert*, you will start receiving at the registered email alerts of new articles published in this search, Figure 2.
Figure 27 - Wiley® Alerts

Source: Authors.

Figure 28 - Selected Documents

Source: Authors.

Select the type EndNote® and Export format citation and abstract, As Figure 29 and click Submit.
Figure 29 - Exporting from Wiley®

Source: Authors
Save the file, Figure 30 and import in your Manager References. In this case the EndNote®. More information on how to import, in Step 2 of this guide.

![Image of Export Citation dialog box]

**Figure 30 - Saving the references from Wiley®**

Source: Authors.
1.6 Compendex® – Engineering Village

Paste the same query in the search field by setting the other fields for compatibility with other databases if you have modified the default and click on SEARCH, resulting in Figure 31.

Figure 31 - Compendex®

Source: Authors.

Results will be displayed as Figure 32.

Figure 32 - Results from Compendex®

Source: Authors.

Click the green arrow from the Select as shown in Figure 33, 34 and select Maximum. If your search has returned up to 500 articles. All items will be
contained in a single file export contrary case, after exporting go to next page next in the top corner and repeat the procedure for selection and export.

Figure 33 - Selecting upto 500

Source: Authors.

Figure 34 - Confirming the selection

Source: Authors.

After selecting the items, click download (1) to export. Will appear on a new screen (2) select detail record and the RIS format and click download, as shown in Figure 35.
Source: Authors.

After downloading, do the import, as described in Step 2 of this guide.
1.7 Emerald®

To be able to do the export in Emerald® with over 10 references, you need to register on the site and be logged. To do this, click the + Login in the upper left corner and enter your access data, if not, fill out the registration (Figure 36).

Please note that your name will appear as shown in Figure 37, indicating that you are logged into the site.

![Figure 36 - Emerald® site](image)

Source: Authors.

![Figure 37 - Logedin](image)

Source: Authors.
Once logged in click on the upper right on Your Profile as shown in Figure 38.

![Figure 38 - Setting up your profile at Emerald®](image)

Source: Authors.

At this point we will create a folder to save the search click marked list edit page, as shown in Figure 39.

![Figure 39 - Creating a Folder](image)

Source: Authors.
Enter the name of the folder to save your search and click Add, Figure 40.

![Image](image1.png)  
**Figure 40 - Creating a list**  
Source: Authors.

Now we have a place to save the search, lets go for it! Click at Advanced Search, as shown in Figure 41, resulting in Figure 42.

![Image](image2.png)  
**Figure 41 - Search**  
Source: Authors.

Paste the same query in the search field, it is recommended to click on the Journals tab to avoid books, websites and other sources of information. Then click SEARCH, resulting in Figure 43.
Search: Authors.

Click Select All to select then in Marked list and select your folder created in our example pesquisa_guia and click GO, as shown in Figure 43.

Source: Author.

Click again on your profile, upper right corner, as shown in Figure 38 and select the list you created in our example “pesquisa_guia” (Figure 44).
Figure 44 - Selecting the list

Source: Authors.

Select all by clicking the *select all* (1), then click *export options* (2), as shown in Figure 45.
Click Export to Endnote and download the references in RIS format as Figure 46 then go to Step 2 to import in your referrer (EndNote®).
1.8 Scholar Google®

Scholar Google® does not provide a friendly way to import all the documents found in the search. It also does not provide search filters such as: Document Type (Articles, Books, Review, etc.), Language, Year, among others. Therefore, it is advisable not to use it in the search strategy along with other databases to ensure the uniformity of the research, ie using the same filters on all databases.

It can be used to expose the quantity of citations contained in your literature portfolio. For this, we seek to exactly title of each of the articles contained in the bibliographic portfolio, writing down the amount of exposed by Scholar Google®.

But why use it if other bases as Scopus®, Web of Science, Compendex® already exhibit? Because each database has its own way of measure and when we join these three bases in one research, there may be discrepancies in the numbers of citations, in addition to the fact that articles contained in a base may not be in another. Scholar Google® will have all the articles, using the same metric.

If your research use only basis, for example Scopus® directly use the metric of the database.

Scholar Google® has a way to export references. Thus, it is necessary to configure it. To do this, click Settings as shown in Figure 47.

![Configuring Google](image)

**Figure 47 - Configuring Google**

Source: Authors.

Click on Show links to import citations for EndNote® to enable it then to save as Figure 48.
This setting will cause to appear in the search results the option to export the citation called "Import to EndNote", as illustrated in Figure 49. Just click to import. It is noteworthy that unfortunately the import is allowed only article in article.
Step 2 - How To Perform Import data obtained in searches

Before performing the import of files from bases Scopus®, Web of Knowledge®, Ebsco®, Scielo®, Wiley®, Copendex® and Emerald® to Endnote®, we organize it, creating a group structure, divided into folders. In our example there are two groups (Bases and Filters) with your folders. The pastes were numbered from 1 to 12 to make up an order.

To create a group, click with the right mouse button on My groups items (Rename Group Set) My Library tab to rename the Group Bases - See Figure 45. After that do the same procedure but the procedure is to create groups - create Group Set and name it Filters.

In short, when you have a group and want to rename it the option is Rename Group Set, is to create the option Create Group Set.

Figure 50 - Create Group Set

Source: Authors.

After create the following folder structure:

Bases (1 – Scopus; 2 – Web of Knowledge; 3 – Ebsco; 4 – Scielo; 5 – Wiley; 6 – Copendex; 7 – Emerald; 8 – ALL; 9 – NOT Duplicated)
Filters (10 – Title / Key / Abstract; 11 – NOT Available; 12 – Available)
As Figure 51.

If you use least two bases for example: Scopus® and Web of Knowledge® Create only: Bases (1 – Scopus; 2 – Web of Knowledge; 3- All; 4 – NOT Duplicated)
Filters (5 – Title / Key / Abstract; 6 – NOT Available; 7 – Available)
To create a folder *Create Group* is the procedure, as shown in Figure 52.

Now, to import the files from databases, i.e. Scopus and Web of Knowledge do the following:

*Figure 53* - To import the file from the search performed on the Scopus® click file -> *import* -> *file*
Then choose the file that was exported from the Scopus database (Figure 54)

All imported references will go to the folder All references and should be copied to their appropriate folders to be created. Both the base files Scopus®, as files of Web of Knowledge®, Ebsco®, Scielo®, Wiley®, Compendex® and Emerald®.

After copying the files to their proper folders "bases", you should join them in the folder 8-All
The folder Scopus® this practical example is 32 files, the Web is of Knowledge® folder with 11. Thus joining the files of two folders mentioned, the folder will be 8-All with 43 files.
Figure 55 - Importing references and putting on the write place

Source: Authors.

To add documents from the databases (Scopus®, Web of Knowledge®, Ebsco®, Scielo®, Wiley®, Compendex® and Emerald®) at Group 8 - ALL should perform the following procedure:
Click to select all items ... PC: Control-A Mac: Command-A then copy control c --- Command-C

Figure 56 - Selecting the documents

Source: Authors.

Click the group 01 - Scopus® and control v / command v and also at the group 8-All
To copy items to the Web Knowledge® and other databases, the procedure is the same.

The next step is to verify if at the folder 08-All exist duplicate files, for that you must copy all files from folder ALL to the not duplicate folder and then execute the function finding duplicates at EndNote®.

Select all files in the folder 09 - No duplicate and click the menu
References -> Find Duplicates, as Figure 57

![Figure 57 - Finding duplicates](image)

Source: Authors.

If EndNote® find duplicates, it will conduct the questioning which of the references you want to keep. You should choose the most complete, click on it to “KEEP THIS RECORD” in the case of this example the left, because the criterion of choice is the name of the journal is correct.

![Figure 58 - Keep this Record](image)

Source: Authors.

The EndNote® **do not** automatically find all duplicates. So you will have to perform a manual filtering after this procedure. Thus, visually look for duplicates and delete them by pressing the delete key on your keyboard. Sorting by author or by title helps in searches for duplicate.
Step 3 - FILTERS Group

Copy to Folder 10 - Title / Keywords / Abstract files in the folder NOT duplicated

Then read the Title / Keywords / Abstract and delete those who are not aligned with the subject of your search. This is the first filter.

To the folder 11 - Not available, copy all files left in the folder 10 - Title / Keywords / Abstract

In EndNote® select all items in the folder 11 - not available \... right click and find full text. As Figure 59.

![Figure 59 - Find PDF](image)

Source: Authors

Available will appear with an icon the clips format 📐. Sort by clicking on the clip ... select the available, ie, those with the 📐 and move them to the folder 12 - Available.

For not available it is recommended to do an aftermath thereof ie click on the URL if available and try to download, or search for the article in Scholar Google®, Microsoft Academic Search®, Google®, Bing®, your library portal, or by portal CAPES portal.

After the end of the searches you perform the analysis only those articles that are in the folder 12 - Available. In our example remaining 12 articles.
Step 4 - Export the data for analysis

Time to export the data to be computed in a spreadsheet, in our case we use the Excel® spreadsheet.

In EndNote® - Choose what to compute, in this example (Authors)
Click at menu Tools -> Subject Bibliography, as Figure 60.

Figure 60 - Subject Lib
Source: Authors.

Select Author -> OK

Figure 61 - Author
Source: Authors.
Select All → OK

![Subject Terms dialog box]

Figure 62 - Select All

Source: Authors.

Select all and paste into Excel®. Because it is in parentheses, it will appear in negative... remove the brackets that will be a positive number.

You can also export data from author, year, title of article via command export to CSV format. Download this style for EndNote®, or follow the same step above quoted to do it for the other fields. As Journals, Keywords, Year, etc.
Step 5 - BIBLIOMETRICS in Excel®

At Excel® creates a set of tabs. The first will be called Matrix Synthesis. It will be analyzed and all articles that will be read in its entirety.

Figure 63 - Synthesis Matrix

Source: Authors.

Other Tabs will be created as well as the analyzes that will be made. Here are some:

- Keywords
- Year
- Author
- Journal
- Database
- Type of research (Empirical, Theoretical, Theoretical/Empirical)
- References (Documents to be read, refereed at this document)
- Construct/Definition – However many are

Now with the exported data from EndNote®, we will perform Bibliometrics. Let see a few examples:

Figure 64 - Keywords most cited

Source: Authors.

Years in which there were publications:
The data for this graph were obtained from Matrix Synthesis folder:

Figure 65 - Frequency vs. Year

Source: Authors.

Figure 66 - Authors at bibliographic portfolio frequency

Source: Authors.
Chart frequency of articles by Journal with data exported from EndNote®:

**Figure 67 - Frequency of the Journals**

Source: Authors.

Figure 68 impact factor and H index was manually assembled, performing site search at http://www.scimagojr.com/journalsearch.php?q=11700154321&tip=sid&clean=0

**Figure 68 - Impact factor and H index**

Source: Authors.
Using the site [http://www.scimagojr.com/](http://www.scimagojr.com/) to collect information regarding the impact of Journals and index H factor belonging to the portfolio bibliographic

Figure 69 - Source of information of index H and impact factor

Source: Authors.

Based on these data, which makes the synthesis of the portfolio literature, leading the researcher to extract the principal reference on a particular subject.

Further analysis and synthesis can be made; all depends on the needs and creativity of each researcher.
Final Thoughts:
We know that this guide does not exhaust the various forms and facets of doing research. However we don't delude ourselves to state that is the only method to do. We were inspired by the questions, inquiries and requests for help, from our students, colleagues, researchers and commercial partners to provide a way to guide a possible path.

We hope this guide helps elaborate research to promote the progress of our country and of science as a whole.

Courses & Lectures:
If you are interested in courses and / or lectures on this topic, please contact with by e-mail helio@igci.com.br or robertofabiano.fernandes@gmail.com

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