

Publication and citation analysis 2015-2019

Introduction

The purpose of this report is to trace the development of the scientific production, citation impact and cooperation of the department or faculty. The report takes a closer look at the research production and cooperation in terms of quantity, types of publication, and levels of impact. This mapping is based on upload of data in VBN. Publications included in the analysis, are from the period 2015-2019.

The report represents a snapshot of the publications, citation impact and cooperation and may as such be useful for pointing out new, surprising contexts and lead to discussions about strategy and cooperation.

The bibliometric indicators in the analysis cannot stand alone, but serve as supplementary information for more in-depth, qualitative analyses. Please notice that VBN, Scopus and Scival are dynamical systems, which means that the number of publications as well as information on impact may vary.

The report is prepared by the VBN Team, Aalborg University Library.

Method

The publications are identified in Pure via departmental and faculty affiliation during the period in question. Using Scopus publication IDs, VBN content can be matched with the contents in Scopus. This match is further improved by Scopus' reporting tool - SciVal. The report's impact figures are derived from content calculations in the citation database Scopus. Furthermore, the publications are categorized according to the Bibliometric Research Indicator (BFI) and the Open Access Indicator.

Publications included in the analysis are from the period 2015-2019 (SciVal 2014-2019). Citations are counted until May 2020.

Tools

Scopus is a bibliographic database that contains abstracts and citations of peer-reviewed journal articles. Traditionally, natural sciences, health sciences, and to some extent engineering, are better represented in Scopus than the social sciences and the humanities. The number of indexed journals and book series expands continuously, and it is possible to make suggestions for indexation of new content.¹

SciVal is a reporting tool used for analysis of data in Scopus. It is possible to make benchmark- and collaborative analyses based on publication- and citation data in Scopus. In addition, it provides a good overview of the publications of both organizations and individuals. As SciVal is integrated with Pure, organizations and authors in Pure can be located in SciVal for further analysis.

¹ https://www.elsevier.com/_data/assets/pdf_file/0007/69451/Scopus_ContentCoverage_Guide_WEB.pdf
-viewed on May 12th 2020

Reservations

Scopus coverage and citation behaviour among researchers vary greatly within the different academic disciplines. Therefore, it would be misleading to make an immediate comparison of publication reports across departments or faculties.

With regard to publication counts, BFI and Scopus, it should be noted that 2019 may differ with a few percent from the final figure.

The figures of the analysis are not normalized in terms of the academic staff full-time equivalent. As such, any comparisons across departments or faculties could give misleading results.

Key to graphs and charts in PowerPoint

Citation database potential (slide 3)

This chart compares the number of publications for the period 2015-2019.

- All publications: Number of registered publications in VBN
- Peer review publications: Number of publications registered as peer reviewed in VBN
- Scopus publications: Number of occurrences in Scopus
- Citation database publications: Publications that typically occur in Scopus and generate citations: Journal articles, conference articles in journals, letters, reviews, and conference articles in proceedings.

The pattern fill shows the potential – e.g. the difference between publications that occur in the citation database Scopus and the number of publications that *could* occur in Scopus because of the publication type, named citation database publications.

To make use of the citation database potential more publications should be in journals and books from publishers, which are already indexed by Scopus. Alternatively, some of the much used journals and publishers at the department or faculty could be proposed to Scopus.

BFI potential (slide 4)

This chart compares the number of publications for the period 2015-2019.

- All publications: Number of registered publications in VBN
- Peer review publications: Number of publications registered as peer reviewed in VBN
- BFI publications: Publications that have triggered BFI points
- BFI categories: Publications that potentially may trigger BFI points. These publications fall within the BFI publication categories - and are peer reviewed - but neither publisher nor journal appear on BFI authority lists.

The pattern fill shows the potential – e.g. the difference between BFI publications, which have triggered BFI points and publications which potentially may trigger BFI points, named BFI categories.

The Danish Bibliometric Research Indicator (BFI) is part of the performance-based model for the distribution of new base funding for universities in Denmark. By means of BFI, funds are allocated

on the basis of the allocation of research publications to the universities.² BFI rewards publication in the most prestigious and recognised journals and publishing houses.

To make use of the BFI potential more publications should be in journals and books from publishers, which are already at the BFI lists. Alternatively, some of the much used journals and publishers at the department or faculty could be proposed for the BFI lists.

Open Access potential (slide 5)

The Open Access Indicator is produced and released annually by the Danish Agency for Science and Higher Education, part of the Ministry of Higher Education and Science. The Indicator monitors the implementation of the Danish Open Access Strategy 2018-2025³ by collecting and analysing publication data from the Danish universities. The strategy aims at 100% Open Access in 2025 for publication published in 2023. The Open Access has a two-year delay which means that the result for 2020 is based on publications published in 2018. This is because of the embargo periods that some journals have. Data is only available until 2018 that is why the period is 2015-2018.

The Open Access Indicator categorises the publications in three categories:

Realised: Publications with realised Open Access

Unused: Publications with unused Open Access *potential*

Blocked: Publications that are blocked from becoming Open Access due to publisher policies

Publication categories (slide 6)

This graph shows the number of publications per publication category and the development during the period 2015-2019.

Publication types (slide 7)

This graph shows the use of different publication types and the development during the period 2015-2019.

The publication type "Other" consists of Paper without publisher/journal, Contribution to newspaper, Net publications, Working papers etc.

Publication language (slide 8)

This graph shows the distribution and development of peer reviewed publications in their original language during the period 2015-2019.

Collaboration and Impact (SciVal) (slide 9)

These two pie charts show Collaboration and Academic-Corporate Collaboration respectively during the period 2014-2019. The data is based on extracts from VBN enriched with SciVal data. SciVal uses Scopus data.

Field-Weighted Citation Impact (FWCI) indicator, which measures the number of citations from a set of publications compared to the average number of citations for similar publications in Scopus.⁴

² <https://bfi.fi.dk/> -viewed May 12th 2020

³ https://ufm.dk/en/research-and-innovation/cooperation-between-research-and-innovation/open-access/Publications?set_language=en&cl=en – viewed May 7th 2020

⁴ <http://libguides.usc.edu.au/researchmetrics/researchmetrics-field-weighted-citation-impact> - viewed May 12th, 2020

A FWCI over one (1) indicates that you receive more citations than the world's average within a given scientific field.

Cross-faculty collaboration and Impact (entire period) (slide 10)

This graph and table shows the number of publications and share of publications the department have in collaboration across faculties. It also shows how many citations and citations per publication the collaboration gives.

No faculty collaboration means that a publication have been made within in the same faculty.

Collaboration Top 15 institutions and Impact (SciVal) (slide 11)

This graph shows the top 15 institutions which the department or faculty has collaborated with. It shows the number of co-authored publications and which impact the publications has generated measured by Field-Weighted Citation Impact.

Field-Weighted Citation Impact indicator, which measures the number of citations from a set of publications compared to the average number of citations for similar publications in Scopus.⁵ A FWCI over one (1) indicates that you receive more citations than the world's average within a given scientific field.

Scopus subject areas and FWCI (SciVal) (slide 12)

The two charts show which subject areas that the department or faculty most frequently uses and the impact (FWCI) they generate. The figures are based on extracts from VBN enriched with Scival data. The subject areas are defined by Scopus.

Top 5 Topics (SciVal) (slide 13)

The table shows the top five topics the department or faculty publishes within. A Topic⁶ is a collection of documents with a common focused intellectual interest and can be large or small, new or old, growing or declining. Over time, new Topics will surface, and as Topics are dynamic they will evolve. Scopus publications are clustered into Topics based upon a direct citation analysis. There are more than 100.000 topics in Scopus. Calculating a Topic's Prominence combines three metrics: citation count, views count and the average CiteScore⁷ for a given year.

Publications in Top Journals (SciVal) (slide 14)

The respective graphs show the number of publications in top 1% and top 10% most cited journals in Scopus. The data is based on extracts from VBN enriched with SciVal data. SNIP is used as yardstick.

SNIP measures the contextual citation impact of a journal by weighting citations based on the total number of citations within a scientific field. This enables you to make a direct comparison of sources within different scientific fields.

SNIP takes the characteristics of the journal's subject fields into account - i.e. the set of documents that refers to the source in question. SNIP pays special attention to:

⁵ <http://libguides.usc.edu.au/researchmetrics/researchmetrics-field-weighted-citation-impact> - viewed May 12th 2020

⁶ <https://www.elsevier.com/solutions/scival/releases/topic-prominence-in-science> - viewed May 12th 2020

⁷ CiteScore is a simple way of measuring the citation impact of serial titles such as journals. Serial titles are defined as titles which publish on a regular basis (i.e. one or more volumes per year). CiteScore calculates the average number of citations received in a calendar year by all items published in that journal in the preceding three years.

- The frequency with which authors mention other papers in their reference lists
- The impact maturity time of the citation
- The extent to which the database used for assessment covers the literature of the field

SNIP is the relationship between the average number of citations of a source per article and the citation potential within its scientific field. A SNIP over one (1) indicates that you receive more citations than the world's average within a given scientific field.

For example – the Department has 17% in the top 10% of the journals listed by SNIP. Thus, if SNIP is used for measuring the impact factor of the journals, 17 % of the Department's publications appear in the 10% highest ranking journals.

BFI levels (share of BFI publications) (slide 15)

The graph shows the percentage distribution of the peer reviewed publications according to BFI levels.

The Danish Bibliometric Research Indicator (BFI) is part of the performance-based model for the distribution of new base funding for universities in Denmark. By means of BFI, funds are allocated on the basis of the allocation of research publications to the universities.⁸ BFI rewards publication in the most prestigious and recognised journals and publishing houses.

BFI-levels and Impact (entire period) (slide 16)

The pie chart show the share of publications in BFI-level 1, 2 and 3. The table shows the number of publications, citations and the citations per publication. The calculations are for the entire period 2015-2019.

Open Access and Impact (slide 17)

This chart compares the number of publications and citations per publication for the period 2016-2018.

- All research articles: Number of peer review journal articles, conference articles in journal, letters, reviews and conference articles in proceeding in VBN.
- Golden OA: Number of peer review research articles with a final published version of the article uploaded as Open in VBN.
- Green OA: Number of peer review research articles with a preprint or an accepted manuscript of the article uploaded as Open in VBN.
- Unknown/Not OA: Number of peer review research articles that are not Open or it is unknown whether it is Open in VBN.

Golden and Green OA are two different routes to Open Access.

- Golden OA is generally known as paid OA as a fee has been paid and the article is then publicly available.
- Green OA is known as to be “free” meaning that another version of the article, either the preprint or the accepted manuscript, has been made publicly available in a repository often with an embargo date.

Citations are from Scopus. Number of citations per publication will decrease when comparing for instance 2016 and 2018 as it takes time for new publications to get citations.

⁸ <https://bfi.fi.dk/> -viewed May 12th, 2020

NB. Only data from 2016 and forward are included, as Open Access data prior to that have not been validated.

Citations and Impact (SciVal) (slide 18)

The first graph shows the total number of citations and the development of citations during the period 2014-2019. When citations are counted, it is worth noticing that more recent publications have less citations than older publications, as accumulation of citations takes time. Citations are counted for publications with publication year 2014-2019 and the actual citations are counted over the same period.

The second graph shows the development of citations per publication during the period 2014-2019 as well as the average number of citations per publication.

The third graph shows the development of Field-Weighted Citation Impact during the period 2014-2019 as well as the average Field-Weighted Citation Impact (FWCI). Field-Weighted Citation Impact indicator measures the number of citations from a set of publications compared to the average number of citations for similar publications in Scopus.⁹ “Similar” means same publication year, publication type and discipline. A FWCI over one (1) indicates that you receive more citations than the world's average within a given scientific field.

Social Media and Usage Metrics (PlumX) (slide 19)

Besides citations, more and more “next-generation metrics” are appearing in research evaluations. We show some here: Capture, Usage, Social Media and Mentions per publication type based on PlumX data¹⁰.

- Capture metric: tracks when end users bookmark, favorite, become a reader, become a watcher, etc. Captures indicate that someone wants to come back to the work. Captures are important because they are an early, leading indicator of future citations. Examples: bookmarks, favorites, followers, readers, subscribers.¹¹
- Usage metric: a way to signal if anyone is reading the articles or otherwise using the research. Usage is the number one statistic researchers want to know after citations. Examples: clicks, downloads, views, library holdings, video plays¹².
- Social Media metric: the +1s, likes, shares, and tweets about research. By tracking social media metrics, you can see how well a researcher is promoting their work. This is especially important for early career researchers to measure and understand who is interacting with their work. Of course, social media also allows us to track the buzz and attention surrounding research. Examples: likes, shares, comments, tweets, ratings¹³
- Mentions metric: Mentions are the blog posts, comments, reviews, and wikipedia links about your research. This category measures when people are truly engaging with your

⁹ <http://libguides.usc.edu.au/researchmetrics/researchmetrics-field-weighted-citation-impact> - viewed May 12th, 2020

¹⁰ <https://plumanalytics.com/learn/about-metrics/> - viewed May 12th, 2020

¹¹ <https://plumanalytics.com/learn/about-metrics/capture-metrics/> - viewed May 12th, 2020

¹² <https://plumanalytics.com/learn/about-metrics/usage-metrics/> - viewed May 12th, 2020

¹³ <https://plumanalytics.com/learn/about-metrics/social-media-metrics/> - viewed May 12th, 2020

research. Mentions are where the stories of how people are interacting with research can be discovered. Examples: blog mentions, comments, news mentions, references¹⁴

NB: The PlumX metrics per publication type are only shown if enough data is available. Less than 25 publications with a given publication type are filtered out.

Publications in Top Citation Percentiles (SciVal) (slide 20)

This graph shows the share of publications in top 10% most cited and top 1% most cited publications worldwide in every year on x-axis – and numbers are field weighted.

The citation thresholds that represent the top 1% and 10% of outputs in the data universe being used are established. The percentage of total counts, of outputs that lie within each threshold is calculated. It answers the question of what fraction of an institution's outputs have reached a particular citation threshold in the data universe.

¹⁴ <https://plumanalytics.com/learn/about-metrics/mention-metrics/> - viewed May 12th, 2020