



**AALBORG UNIVERSITY**  
DENMARK

**Aalborg Universitet**

## **Guide AAU Forskningsindikator**

*Guide to AAU Research Indikator*

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AALBORG UNIVERSITET

# THE AAU RESEARCH INDICATOR

*To Promote AAU's Scientific Publication and Impact,*

*Collaboration, Visibility, and Openness*

*A Guide to the AAU Research Indicator*

The Committee for the Development of a New Research Indicator at Aalborg University



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## INTRODUCTION

This guide highlights key points from the AAU Research Indicator report with an eye towards how researchers at AAU can apply the indicator in their strategies for publication and dissemination of research.

The guide contains several recommendations on how researchers at AAU should relate to the new AAU Research Indicator, including calculation of publication points and other forms of assessment of publications, impact, and dissemination, as well as its significance regarding Pure registrations.

Although this guide is specifically targeted at researchers, it is important to stress that the AAU Research Indicator is not intended for use at individual level. In practice, this means that the departments receive a total point based on the research production of the entire department that cannot be calculated in relation to individual researcher contributions. At the same time, the AAU Research Indicator contains several new ways of evaluating research aimed at collaboration, visibility, and openness. There are points for the individual researcher to consider in terms of making research visible via researcher profiles in VBN through various types of Pure registrations.

The committee behind the AAU Research Indicator, and material for dissemination, has been established by the Danish Council for Research and Innovation (SRFI). The committee consists of one representative from each of the four faculties, one from AAU Innovation, as well as two representatives from VBN and ØA respectively. Finally, the Committee has engaged Professor Gunnar Sivertsen from *The Nordic Institute for Studies in Innovation, Research and Education* (Oslo) as an external consultant, who contributes with knowledge and experience in bibliometric research evaluations.

You can read the full, detailed report via the following link:

<https://vbn.aau.dk/en/publications/aau-forskningsindikator-til-fremme-af-aaus-videnskabelige-publice-2>

## AAU'S NEW RESEARCH INDICATOR

### **A more holistic approach**

Research evaluations are currently undergoing a development in which qualitative parameters are increasingly included in the assessment of research, and contributions to research, in interaction with more classical and quantitative bibliometric methods such as citations, publication points and publication channels. As part of this development, several documents and manifestos have been drawn up to inspire a more holistic mindset regarding research evaluations (Hicks et al. 2015; DORA 2012; Coalition for Advancing Research Assessment 2022; Johansen et al. 2021).

A common reasoning in these documents is the idea of "responsible metrics" - a terminology particularly used by the EU in its latest approach to research evaluations from 2022 (Coalition for Advancing Research Assessment 2022). By using these metrics, research institutions want to ensure that researchers and research are assessed on a fair basis, taking the differences in research disciplines into account and promoting diversity in research outputs and contributions. This method can support sound research indicators.

By including several elements from the Agreement on Reforming Research Assessment (ARRA) and The Declaration on Research Assessment (DORA), as well as taking the differences between STEM and SSH faculties into account, AAU is a pioneer university in the work of using more responsible metrics for research evaluations on a well-informed and recognized basis. Being able to include other types of documentation than publication points and citations, the new AAU Research Indicator reveals a wider range of strong research positions in the various academic environments at AAU.

### **The new research indicator at AAU can:**

- Display research width and height
- Be internationally recognizable
- Display an understanding of differences between disciplines
- Use responsible methods/metrics
- Show impact
- Be part of the budget model

Aalborg University has signed both ARRA and DORA

Read more about ARRA here: <https://coara.eu/>

Read more about DORA here: <https://sfdora.org/>

## HOW CAN RESEARCHERS USE THE NEW RESEARCH INDICATOR?

Research takes place in different phases and is communicated/disseminated in different ways. This is precisely why it is important that research evaluations take the different phases into account and recognise that research results often end up in publications of different types, and that there is a vast amount of dissemination work associated with this before, during, and after publication. At the same time, studies show that e.g., journal articles have better impact in terms of citations if they are written in collaboration with other, preferably international, research environments (Schneider and Norn 2023; Uddannelses- og Forskningsministeriet 2019) 1. In addition, cooperation with national and local companies, authorities, organizations etc. ensures that the knowledge created at the universities is disseminated and applied in society. This supports AAU as a mission-driven university, and as such the new research indicator's focus on publication, visibility, collaboration, and openness is in line with AAU's strategic work.

The new AAU Research Indicator makes it possible to show several types of impact and research height through the inclusion of multiple publication types, as well as it includes a focus on collaboration, visibility, and openness.



*Figure 1: Publishing Cycle*

For researchers at AAU, the indicator can show both publication and impact. At the same time, it provides insight into how researchers at AAU generally collaborate on publications, projects, etc. in relation to local, national, or international companies. It also provides insight into AAU's research contributions to the authorities. In addition, the AAU indicator can show other types of communication of research, such as participation in debates on social media, in the news, or in board and foundation work.

## THE AAU RESEARCH INDICATOR IS BASED ON TWO PRINCIPLES

Although both DORA and ARRA encourage an increased focus on open science parameters, and more qualitative indicators, there is still a need for conventional bibliometrics to measure and assess research height, as well as breadth. Thus, the new indicator consists of two parts;

- Part A focuses on scientific publishing by means of bibliometric methods
- Part B applies an open science perspective on research evaluation that translates into three areas: *Collaboration, Visibility, and Openness*

While the bibliometric part is neutral in terms of scientific disciplines, and directly supports the university's internal distribution of basic funding for research, Part B is useful in the design and follow-up on more subject-specific research strategies at department level.

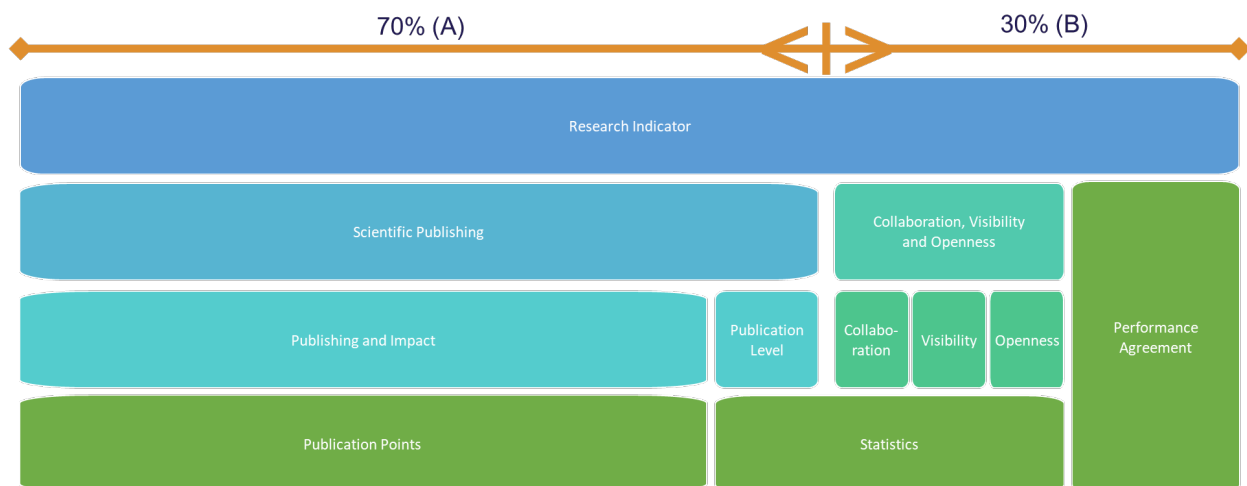


Figure 2: The AAU Research Indicator

Part A (weights 70 percent):

- Is applied for calculation of publication points with citations
- Is comparable between disciplines and departments
- Is supported by complete data
- Is calculated at department level
- Internationally recognizable bibliometric indicators

Part B (weights 30 percent):

- Data for performance agreements on collaboration, visibility, and openness
- May show scientific differences among departments, including positions of strength that are not necessarily reflected in citations or peer-reviewed publications
- The overall data sources are qualitative, and statistics and descriptions are used in the dissemination
- Is compiled at department level
- is internationally recognizable in an open science perspective and compatible with DORA and ARRA

## AAU RESEARCH INDICATOR

### ***Part A – Scientific publishing***

Part A is based on calculation of publication points and founded on complete data for scientific publishing from all disciplines. The calculation ensures a balance between them. However, the AAU Research Indicator has been expanded in relation to previously used indicators with more publication types, as well as changes in some of the point rates for publication contributions compared to previously used models. At the same time, the indicator has been developed to include citations wherever possible. When citations are used, the departments' coverage rate in the citation database Scopus is first calculated to accommodate publication differences across departments. That is, it considers that some departments have a large part of their research production indexed in Scopus, while others have a smaller part. The departments' coverage ratio is therefore calculated based on the departments' total research production in Pure. In the AAU Research Indicator, citations are also only weighted for each department.

### ***Part B - Collaboration, Visibility, and Openness***

Part B is based on statistics and information at department level regarding innovation and collaboration, visibility, and openness in research practice. This part of the indicator uses a different type of data, which may be more incomplete in relation to what you want to measure, and where a 1:1 comparison between disciplines may be difficult. At the same time, Part B is important in ensuring that AAU's research indicator includes perspectives from DORA (2012) and ARRA (2022), thus ensuring that the model has the desired behaviour-changing effect in terms of understanding that research publishing and research impact can be measured using different indicators. The Committee proposes that reporting of this part of the indicator is included in the existing target agreements. For the departments to gain access to the part of the fund pool that is allocated for collaboration, visibility, and openness, it is required that there is a target agreement approved by the Dean's Office. Since Part B of the indicator will require the greatest transformation in terms of implementation, including collection of data, the committee proposes that Part A takes up 70 percent in the economic distribution model, whereas Part B takes up 30 percent and is used following a qualitative assessment of the strategy work. The Committee proposes that the distribution of the percentages between A and B are adjusted on a continuous basis.



## TWO IMPORTANT METRICS IN RESEARCH ANALYSIS

In general, there are two approaches when it comes to calculating impact from a citation perspective. You can either choose an article metric (see A) or a journal metric (see B). In addition, you can choose whether the metric should be field-weighted, i.e. normalized within a research area, or whether it should be non-normalized. A normalized citation metric means that citation practices within a given research field are taken into account, e.g. frequency of citations.

### **A. Field-Weighted Citation Impact (FWCI)**

1. Article metrics
2. Normalized in research field (world avg. 1)
3. Expresses the visibility/impact of articles
4. The non-normalized counterpart: Number of citations

### **B. Source Normalized Impact Per Paper (SNIP)**

1. Journal metrics
2. Normalized in research field (world avg. 1)
3. Expresses the probability of citations in a given journal
4. The non-normalized counterpart: *CiteScore* (Journal Impact Factor)

The AAU Research Indicator calculates citations using a field-weighted article metric. This means that the citations are weighted in relation to the subject field in which they are published. This is done to focus on the impact of the publications and not the journal in which they are published. This principle is in line with ARRA and DORA that recommend the focus on Journal Impact Factors is replaced by a focus on the merits of the individual article. This does not mean that the impact of a journal is unimportant when researchers must choose a publication channel. The journal's impact factor remains an indicator of the likelihood of citations.

## SCIENTIFIC PUBLISHING (PART A)

Scientific disciplines differ, also in terms of ways of communicating research results. Part A of the research indicator recognizes various of publication types – but with different weights. For a publication to trigger potential points in the AAU Research Indicator, it must be peer-reviewed and published through a professionally recognized channel<sup>1</sup>.

This is required in order to maintain focus on the merit and quality of journals, series, and publishers. As the Danish BFI lists is no longer updated, it is the Norwegian List – *The Norwegian Register for Scientific Journals, Series and Publishers*<sup>2</sup> – that you must look to. The advantage of the Norwegian list is that it includes twice as many channels as the previous Danish list. Danish researchers may suggest additions to the list.

Unlike the old BFI model, the AAU Research Indicator does not apply levels when awarding points. This means that a publication triggers points if the publication venue is on the Norwegian list and meets the minimum criteria (i.e. is on level 1). The points are awarded based on the basic points in the table below, regardless of journal's level at the Norwegian list.

The weighting is expressed in terms of the number of basic points in the following table:

Publication types that count in the AAU Research Indicator	Basic points (B)
Journal article, Conference article in journal, Letter, Review, Contribution to book, Contribution to report, Conference article in proceeding	1
Book, Report, Doctoral thesis	5
Encyclopaedia article, Anthology, Editorial, Preprint	0,5.
Patents	2

### WHEN CHOOSING A JOURNAL, SERIES, OR PUBLISHER

- Locate the publication channel that you find most suitable for communicating your research.
- Check if the channel is on Norwegian the list at [https://kanalregister.hkdir.no/publiseringskanaler/Forside.action?request\\_locale=en](https://kanalregister.hkdir.no/publiseringskanaler/Forside.action?request_locale=en)
- If the desired publishing channel is not on the Norwegian list, you have the option to suggest new journals, book series, or publishers. This is done via a standardised reporting form via the link above.
- If you publish in a journal or book series, check if the channel is indexed in the citation database Scopus.

<sup>1</sup> There are certain exceptions for peer review: Preprints and patents. These cannot be marked with peer review in Pure.

<sup>2</sup> <https://kanalregister.hkdir.no/>

### **SUGGEST A NEW JOURNAL, BOOK SERIES, OR PUBLISHER**

If a journal, book series, or publisher is not in the Norwegian register, you can suggest that the publishing channel is included. You must create a user at <https://kanalregister.hkdir.no/>. The website is available in both Norwegian and English and has descriptions of procedures and criteria for approval of proposals for publishing channels. Please notice the annual deadline in the autumn for proposals to the register. Publishing channels proposed after the deadline will not be considered in terms of publication points for the current publication year. A final status on the proposed channels will be published in January the following year.

### **WHY IS IT IMPORTANT TO HAVE AN AUTHORITY LIST?**

It matters greatly which journal or publisher you choose when you are going to publish your research. The probability of citations, and hence the visibility and scope of your communication of research results, varies greatly from one publication channel to another. In general, a great deal of work is carried out to assess the academic quality of methods and results described in research publications. However, there are also examples where the peer review is not commensurate with what can be expected and is necessary.

At one end of the spectrum are well-run journals and publishers that have quality communication and peer review. These publishing channels are often known and recognized in the scientific environments. At the other end, there are publication channels that in various ways do not meet general standards for scientific publishing. It can be anything from poor quality in peer review, and visibility of the publications, to the so-called "predatory journals" that charge you for publication without anything happening other than that you pay and neither get correct peer review nor get your research published.

Predatory journals are an increasing problem as more and more journals convert to full Open Access and change their business model to publication payment in the form of an Article Processing Charge (APC) (Sivertsen 2022). As such, it is important that the new AAU Research Indicator makes use of a type of authority list that can help ensure that the research produced at Aalborg University is also published through professionally recognized publishing channels.

In this context, "professionally recognized" means that researchers with domain knowledge have assessed that the work carried out in relation to peer review, and communication about publications through a given channel, meets current standards in the field. The work of assessing publication channels takes place in several countries, but Norway has a well-run organisation of the work with lists of professionally recognized channels – *The Norwegian Register for Scientific Journals, Series and Publishers*.

### **HOW ARE POINTS CALCULATED?**

The use of responsible metrics is a fundamental principle of the AAU Research Indicator. In practice, this means that the indicator does not calculate points at individual level, but at department level. At the same time, the assessment of a publication is based on its own merits, e.g. citations or publication type. This means that the AAU Research Indicator does not make direct use of e.g. a Journal Impact Factor or "publication venue" in the calculation of score. Thus, a grading of points is no longer used in relation to where an article is published, as was the case with e.g. the BFI model. Furthermore, the new indicator takes diversity in publication types and dissemination paths of research and research results into account, which is why more scoring publication types have been added. For Part A, this means that publication points

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weighted by citations are calculated at department level. In Part B, the department works strategically with target agreements aimed at collaboration, visibility, and openness in relation to the department's research.

### ARTICLE IMPACT

In research evaluation, it is possible to emphasize quantity on the one hand and quality on the other. Publication counts and publication scores focus on quantity. This provides a picture of research volume and the opportunity to follow the actual production of research contributions. Another complementary focus is quality that is expressed e.g. through impact, which is achieved by including citations in the equation. It should be emphasized that citations are one of many elements that constitute research quality. Part B of the AAU Research Indicator focuses on other, and some of the more qualitative, ways of evaluating research.

The AAU Research Indicator pays attention to quantity both in relation to the number of publications of different types and to citations where possible. In practice, this means that a department's share of Scopus indexed publications are assigned a citation weight. However, not all departments are equally well covered in the Scopus citation database. To accommodate the difference, the department's coverage rate in Scopus has been calculated on the basis of the department's entire scoring research output (Scopus coverage = SC). This means that for departments with a high Scopus coverage ratio, the citations will carry a correspondingly high weight. Conversely, citations will have less weight for departments with low Scopus coverage.

#### **Example**

**If a department's Scopus coverage rate is 40 percent, 40 percent of the department's total publication points will be weighted with a citation number and 60 percent will not be weighted.**

### THE FIELD-WEIGHTED CITATION METRIC FOR POINT CALCULATION (FWCI)

Field-Weighted Citation Impact (FWCI) is used as citation weight. Field-Weighted Citation Impact is calculated on the basis of Scopus data, and the metric takes differences in citation patterns within the various scientific disciplines into account. It is a way of measuring how the number of citations for a set of publications compare to the average number of similar publications in Scopus. An FWCI over one (1) means that you receive more citations than the world average within a given scientific field.

A department's publication points are weighted as follows:

$$P * W^{org}$$

$W^{org}$  is a total reflection of the citation weight of the department's publications. Based on the division of the department's publications into a share covered in Scopus, and a share *not* covered in Scopus, FWCI weights the share of publications covered in Scopus. Thus, the department's total citation weight is calculated as follows:

$$W^{org} = SC^{org} * FWCI^{org} + (1 - SC^{org})$$

In both examples, the calculation of the department's publications covers a five-year period up to and including the year for which publication points are calculated. Thus, if publication points

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are to be calculated for 2022, the calculation period for coverage ( $SC^{org}$ ) and field-weighted citation figures ( $FWCI^{org}$ ) are 2018-2022.

Weighted publication points are calculated every year at the beginning of June for previous year's publications. Both FWCI and Scopus coverage ratio for publications are calculated for a five-year period in arrears in relation to the year for which publication points are calculated.

### **Example**

**Points for publications published in 2022 (points are calculated in June 2023) are calculated with Scopus coverage for publications in the period 2018-2022 and FWCI for the period 2018-2022. Both Scopus' coverage ratio and FWCI are calculated at department level.**

### **WHY IS SCOPUS USED AS A CITATION DATABASE?**

Scopus, Web of Science, and Dimensions are citation databases that aim to index journals and count citations. If a journal is indexed in either Scopus, Web of Science, or Dimensions, it is possible to calculate number of citations at article level, to specify a certain time span, as well as to identify in which articles the citations occur. It holds for all three citation databases that they have clear definitions of their overall data sources.

There are other citation databases, such as Google Scholar, which have good coverage, but lack a clear definition of the overall data sources that inform their citation counts. At the same time, Google Scholar does not have the option of aggregated data extraction such as FWCI. Web of Science coverage rate is slightly smaller, or corresponds, to Scopus', whereas Dimension's coverage rate is less than both Web of Science and Scopus in terms of AAU publications. Scopus covers more than half of AAU's research publications and has consequently been chosen as *the* citation database in order to achieve high coverage based on solid data. The VBN team will continuously monitor developments within citation databases and assess whether there is reason for a change of practice.

### **COLLABORATION ON PUBLICATIONS**

With the new AAU Research Indicator there is a desire to promote cooperation locally, nationally, and internationally, as studies show that it often gives higher impact (Schneider and Norn 2023). Major bibliometric studies and mathematical calculations have shown that by applying the square root of the fraction, you achieve an improved calculation of point proportion. This is because the square root of a fraction is always bigger than the fraction. This way of thinking is based on the idea that teamwork requires overlapping responsibilities and organization, and as such should be rewarded in the calculation of points (Sivertsen, Rousseau, and Zhang 2019). In addition, there is evidence that publications written in collaboration with international researchers achieve a higher number of citations (Schneider and Norn 2023).

In practice, this means that publication points ( $P$ ) are calculated at department level, and basic points ( $B$ ) for a publication is divided between departments as follows:

$$P = B \sqrt{\frac{L}{T}}$$

$L$  is the number of authors from the department, and  $T$  is the total number of authors on the publication.

This means that collaboration on publications is rewarded by calculating fractionation, and that it potentially has a positive impact on the department's FWCI.

## **COLLABORATION, VISIBILITY, AND OPENNESS (PART B)**

Part B Collaboration, Visibility, and Openness incorporates new international trends within research evaluations (e.g., ARRA and DORA). By displaying and documenting other types of contributions to research than publications and citations, Part B aims to highlight both research height and breadth, as well as ensure that each department can choose and show its positions of strength within the three defined areas: Collaboration, visibility, and openness.

Unlike Part A, Part B uses statistics, not points, in connection with the annual performance agreements that the departments must prepare for approval by the Dean's Office. The performance agreements for Part B of the AAU Research Indicator are incorporated into the performance agreements for *Knowledge for the World*, but with a separate section on the design of the research indicator.<sup>3</sup> Part B of the AAU Research Indicator is made possible by Pure data that currently includes several data on collaboration, visibility, and openness.

Furthermore, Part B of the indicator is calculated at department level and is also department-specific, as it is the departments that choose which statistics and data they use in the performance agreements on cooperation, visibility, and openness. In addition, this part can also make use of the statistics calculated in relation to publication level (see figure 2 for an overview of the different parts of the AAU Research Indicator). The department must have an approved performance agreement to obtain the funds associated with Part B. The performance agreements are drawn up at department level and approved by the Dean's Office.

The following subsections will briefly outline the different types of currently available Pure data regarding collaboration, visibility, and openness. In addition, there is a description of how this type of data can show other ways in which research has impact and influence on the surrounding society. This includes how it may shed light on contributions to international agendas within academia, the public sector, and business community. As explained, it is up to the individual departments to choose their area of focus in a given period.

### **COLLABORATION**

Pure publication records contain information about internal and external authors as well as their affiliations. Department and faculty relations are generally displayed for internal authors. External authors are displayed with their organization and country. This information can be

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<sup>3</sup> For more information on how the departments should work out the research indicator part the annual performance agreements look here: <https://vbn.aau.dk/da/publications/aau-forskningsindikator-del-b-data-katalog-og-guide-til-institut->

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found for activity and project registration to a certain extent. Thus, external collaboration on publications can be documented to a very high degree.

Activities and projects in Pure may show different and broader areas of collaboration than publications, which are primarily aimed at academia. There may be co-authors from public and private organizations, and with regards to activities it is possible to include memberships of networks, councils, boards, and other contexts in which researchers from AAU contribute. Project registrations have a broad scope and can contain many types of collaboration. If the department wishes to focus on collaboration and external relations based on activity and project registrations, it will require an effort in terms of creating a foundation of usable and valid data sources for departments with no established registration practice.

ARRA (2022) emphasises diversity in research roles and career pathways, as well as roles outside academia. This can be documented by co-publishing with people from public and private organizations. Students and administrative staff (TAP) are already included as authors on some of AAU's publications, and there is an existing practice at several departments for the inclusion of these research roles. It applies to both students and administrative staff that they count as internal authors on publications.

### VISIBILITY

Research visibility has been the traditional focus in academia. This can be demonstrated by citations to some extent. For departments where citations are an important and frequently used metric, the department may choose to focus on journal level and the share of most cited publications in the performance agreements to show visibility or other citation metrics that reflect publication level.

AAU's strategy *Knowledge for the World* aims to make a more far-reaching research impact and prove its relevance to the surrounding world by other means than just citations. ARRA (2022) emphasizes the recognition of technological, economic, cultural, and societal impact. The overall data sources made available for demonstration of visibility outside the research community includes press cuttings, the social media metrics of publications (PlumX Analytics, n.d.), and "impact registrations".

Press cuttings are registered in AAU's research registration system based on a media list of Danish sources, and with a certain addition of international online sources. You can view a level termed "attention per press cutting" via the number of media in which the individual press story has been reproduced.

Any online attention that AAU's publications receive in the terms of clicks, downloads, bookmarks, comments, shares, likes, tweets, etc. is picked up and noted along with the publications (PlumX Analytics, n.d.). This holds for four categories: Usage, Captures, Mentions and social media. A measure of a department's online attention can, for example, be attributed to the number of publications - within the group of publications - that have the 10 percent most *mentions* in relation to the faculty.

Societal impact is difficult to document but is in high demand. Under the auspices of the VBN team, AAU runs a system where daily press cuttings are used as possible catalysts for registration of societal impact. Approximately 15-20 press cuttings are created at AAU daily. Press cutting summaries form the basis for an assessment of whether AAU research has had an impact – great or small – outside the university. If this is the case, it is investigated whether the

research and impact can be retrieved, and supported by, other press cuttings, publications, projects, etc. If any such support for an impact description is detected, a description of the impact is prepared, and a registration of societal impact is made by the VBN team.

### OPENNESS

Transparency regarding research results and data is one of the main points of ARRA (2022). This includes early sharing of data and results, as well as openness regarding partners. Open access to publications and data (for the latter to the extent possible) is a grant requirement of the EU (the European Commission n.d.). At the same time, there is an increasing demand from national funders and foundations that research publications are made openly available. Therefore, it is important that AAU researchers are aware that they may be under the obligation to make their research openly available once they have received grants. This can either be through golden Open Access publications, where you pay an Article Processing Charge (APC), or via green Open Access (parallel publishing) of the accepted manuscript (Uddannelses- og Forskningsministeriet n.d.).<sup>4</sup>

The new AAU Research Indicator represents a broad understanding of openness. Which means that all types of openness to publications and other research dissemination have value. With regards to Part B, for example, departments can work on access to publications that do not comply with the Open Access Indicator's requirement of a maximum 12-month embargo period and limitation to journal articles (Uddannelses- og Forskningsministeriet n.d.). They can work towards open access to as much research as possible, even if it is only after an embargo period of e.g., 24 months.

Another area of openness that departments can work with is open data and compliance with the FAIR principles (Wilkinson et al. 2016). Examples of this could be to record metadata for datasets in Pure, or descriptions of how the department works to incorporate the FAIR principles in their research.

Openness is also a matter of the individual researcher's efforts in terms of describing his or her research profile. Researchers can draw up an active profile description at AAU's research portal: <https://vbn.aau.dk/en/>. Creating ORCID and Google Scholar profiles will further help to strengthen an open online infrastructure for communication and collaboration on research.

### THE DEPARTMENT'S APPROACH TO THE PERFORMANCE AGREEMENTS

Part B provides the department with an opportunity to show precisely where the department has its strengths, and to argue for - using statistics and narratives in the annual performance agreements - which target picture and data sources should be considered in the department evaluation of cooperation, visibility, and openness. The performance agreements are linked to existing goal agreements in *Knowledge for the World* and will be included in this report.

There are certain prerequisites that must be met before a department's performance agreement can be approved by the Dean's Office:

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<sup>4</sup> A guide to Open Access can be found here: <https://www.team.vbn.aau.dk/forskningsformidling/open-science/Open+Access/>



## AAU RESEARCH INDICATOR

- All three areas must be taken into consideration. However, the departments may choose to focus on certain elements as part of a strategic initiative.
- Such choices and data sources must be specified and justified in the performance agreements.
- Department research narratives and focus areas (the VBN team is responsible for providing data in defined areas within collaboration, visibility, and openness)

### **THE INDIVIDUAL RESEARCHER'S APPROACH TO THE PERFORMANCE AGREEMENTS**

It is important that the individual researcher pays attention to the department's choice of focus areas in terms of cooperation, visibility, and openness. For example, the department may choose to pay special attention to Open Access, to mandatory project registration in Pure, to promote the use of ORCID, or something else that promotes collaboration, visibility, and openness.

Pure registration of data types other than publications, is an advantage to the individual researcher, as it contributes to a more extensive VBN research profile that e.g. shows external partners on projects or publications. Or makes as much research as possible openly available. Registration of other content types, and adding descriptions to your VBN profile, will expand your VBN research profile and make the dissemination of your research clearer. In addition, you will enjoy the benefit of having your research activities and production collected in one place. This makes it easier and quicker to compile an overview for e.g. research applications, which seem to reflect an increasing demand for other types of data than publication lists.

## THE INDICATOR IN PRACTICE

To illustrate how individual researchers can use the indicator, the following describes some scenarios on publishing patterns/profiles, how they look in relation to the new indicator, as well as a few tips for working with publishing strategy and impact based on the different profiles.

### **"Researchers who primarily publish in English-language journals"**

Article publication in English-language journals will to a large extent be able to document citations. Within these disciplines, one strategy is to make sure that the journals selected are indexed in Scopus. Select high impact journals, if possible, as these are more likely to prompt citations than journals with low impact. Online dissemination and links to the publications will further increase the impact.

*Advice regarding publishing strategy and impact:*

- 1) Try to make your research openly accessible by publishing Open Access. Several studies show that Open Access publications often achieve a higher citation rate. You may obtain Open Access to publications via the various publishing agreements that AAU has entered (<https://www.en.team.vbn.aau.dk/research-communication/open-science/open-access/open-access-publishing-agreements/>), or by uploading an accepted manuscript in VBN.
- 2) Share research news on social media. If you use a DOI for the publication, you will make it easy to find. If the publication is Open Access, others will have the opportunity to easily read and apply your research results.
- 3) Aim for journals that are indexed in Scopus and have a high probability for citations.
- 4) Check the *Norwegian Register for Scientific Journals, Series and Publishers* to make sure the publication will trigger points.

### **Please notice: English-language journal articles versus conference proceeding articles**

It is not uncommon that conference articles have a lower weighted citation index (FWCI) than journal articles. In such cases, a strategic step would be to move from publishing in conference proceedings to publishing in Scopus indexed journals. However, there are always exceptions, and it is therefore important that the department is aware of its own research and publishing practices while taking into account how the new AAU indicator works.

### **"The researcher who mainly publishes book chapters, books, and anthologies"**

In many SSH research disciplines, research practice involves publishing a larger number of chapters in books, books, and anthologies. These are not represented to any significant degree in Scopus. Books, anthologies, and book chapters in English, which may have a high international impact, will not be able to document a similar weighted citation index (FWCI). On the other hand, the anthology receives points in the AAU Research Indicator because it recognizes and credits editorial work. At the same time, book chapters trigger 1 point in the Research Indicator as it weighs the work of publishing book chapters.

*Advice regarding publishing strategy and impact:*

- 1) Explore the possibilities of making a book chapter Open Access in VBN via parallel publication of the accepted manuscript.
- 2) Online communication regarding such publications will increase visibility and impact, which will be documented in the form of online media metrics (PlumX).

- 3) Check the *Norwegian Register for Scientific Journals, Series and Publishers* to make sure the publication will trigger points.

### **"The younger researcher with few publications"**

At the beginning of a research career, where the number of publications can be relatively low, it is a good idea to draw attention to some of the other research activities in which you take part. This may be participation in conferences with and without paper/abstract/poster, participation in editorial work, planning and arranging conferences, and appearances in the public debate via traditional and social media.

*Advice regarding publishing strategy and impact:*

- 1) Wherever it makes sense, within the individual research disciplines, publishing preprints on a preprint server or in VBN can be a way to show one's research results early in the process. It is often possible to get a DOI attached. Furthermore, a preprint becomes part of the scientific repository, so it is possible to track it along with e.g. SoMe activities. In the new AAU Research Indicator, preprint counts 0.5 points (pay attention to publishing practice).
- 2) Use SoMe as much as possible to draw attention to your research and the impact and application it may have on society.
- 3) Registration in Pure of activities such as conference/workshop and lectures also help to show your research profile and impact.

## **QUESTIONS**

You are always welcome to contact the VBN team if you have any questions regarding the new Research Indicator.

Contact information:

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