The Danish Open Access Indicator
PASTEUR4OA Final Conference: Green Light for Open Access
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Office for Bibliometrics and Data Management
Technical University of Denmark
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The Danish Open Access Indicator was launched on the 9th March 2016 by the Ministry of Higher Education and Science.

The Danish Open Access Indicator estimates the amount of scientific publications produced at Danish universities which has been published as Open Access and which is freely available on the Internet. The Open Access indicator monitors how the Danish universities fulfill the targets of the National Strategy for Open Access.

Each year, the indicator collects data about the Danish production of scientific publications and divides them into three categories:

1. Realised Open Access – Referring to publications that are freely accessible online, without any requirements for payment or other forms of barriers.

2. Unused Open Access potential – Referring to publications that are not freely accessible online, but which have been published in journals which allow Green Open Access with an embargo period of up to one year.

3. Unclear Open Access potential – Referring to publications that are not freely accessible online and which have been published in journals with an undetermined Open Access policy.

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Danish National Strategy on Open Access

Announced on European Science Open Forum (ESOF) in Copenhagen 24th of June 2014.

By (former) Minister for Higher Education and Science Sofie Carsten Nielsen

Photo: NordForsk/Terje Heiestad
Denmark’s Open Access goal

<table>
<thead>
<tr>
<th>Year</th>
<th>Goal</th>
<th>Published</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>80%</td>
<td>Published in 2016</td>
</tr>
<tr>
<td>2022</td>
<td>100%</td>
<td>Published in 2021</td>
</tr>
</tbody>
</table>

To peer review scientific articles
The strategy: GREEN Open Access
GREEN Open Access

- No additional cost i.e. no hybrid open access
- Negotiation with publishers i.e. National Licenses through DEFF.dk
- Establishment of an OA-publishing service for Danish Journals
- Establishment of a national Open Access indicator
Open Access Barometer pilot project

- DEFF funded project 2012 – 2014
- Based on reuse of metadata from i.e. CRIS, DOAJ.org, SHERPA/ROMEO
- Twitter: #oabarometer
- Reports: http://projekter.kulturstyrelsen.dk/projekt/dansk-open-access-barometer
The development of the Open Access indicator

- Working group established by the Ministry of Higher Education and Science
- With the task to specify the development of an Open Access indicator
- In relation to the National Danish Research Database.
- An indicator that can monitor the implementation of the national Open Access Strategy
- First (pilot) result presented in March 2016
Definition of publication types to be measured

• Should conference contributions in proceedings or book series (anthologies) be included

• Final definition:
  • ”Scientific articles and conference contributions in journals and proceedings with ISSN”.

• Close to the UK REF definition
  • post-2014 REF ” The requirement applies only to journal articles and conference proceedings with an International Standard Serial Number” : http://www.hefce.ac.uk/pubs/year/2014/201407/
### Publication Statistics

#### BY INSTITUTION

<table>
<thead>
<tr>
<th>Institution</th>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Copenhagen</td>
<td>262,674</td>
</tr>
<tr>
<td>Aarhus University</td>
<td>261,756</td>
</tr>
<tr>
<td>Technical University of Denmark</td>
<td>156,379</td>
</tr>
<tr>
<td>Aalborg University</td>
<td>112,683</td>
</tr>
<tr>
<td>University of Southern Denmark</td>
<td>93,822</td>
</tr>
<tr>
<td>Capital Region of Denmark</td>
<td>44,372</td>
</tr>
<tr>
<td>Roskilde University</td>
<td>33,782</td>
</tr>
<tr>
<td>Copenhagen Business School</td>
<td>31,561</td>
</tr>
<tr>
<td>Research Institutions in Architecture, Design and Conservation</td>
<td>6,702</td>
</tr>
<tr>
<td>Ministry of Culture</td>
<td>4,515</td>
</tr>
<tr>
<td>IT University of Copenhagen</td>
<td>2,800</td>
</tr>
<tr>
<td>Royal Danish Defence College</td>
<td>928</td>
</tr>
</tbody>
</table>

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### Open Access Indicator

#### NATIONAL

<table>
<thead>
<tr>
<th>Institution</th>
<th>Open Access Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>18%</td>
</tr>
</tbody>
</table>

#### BY UNIVERSITY

<table>
<thead>
<tr>
<th>Institution</th>
<th>Open Access Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical University of Denmark</td>
<td>31%</td>
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<td>Aalborg University</td>
<td>19%</td>
</tr>
<tr>
<td>IT University</td>
<td>18%</td>
</tr>
<tr>
<td>Copenhagen University</td>
<td>17%</td>
</tr>
<tr>
<td>University of Southern Denmark</td>
<td>15%</td>
</tr>
<tr>
<td>Aarhus University</td>
<td>13%</td>
</tr>
<tr>
<td>Copenhagen Business School</td>
<td>4%</td>
</tr>
</tbody>
</table>

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**Nearly 1 million research publications collected from the research databases of 12 Danish universities and research institutions.**

*New (March 2016): 2014 Statistics for Open Access implemented. Approx. 130,000 duplicates no longer visible*
Open Access Indicator — Statistics for 2014

Open Access Potential: Realized, Unused and Unclear

Indicator Year: 2014

Open Access Potential:
- **Realized**
- **Unused**
- **Unclear**

**Description:**
- Overview
- Technical
- At the Danish Agency for Science, Technology and Innovation

**NATIONAL**

<table>
<thead>
<tr>
<th>Total</th>
<th>Realized</th>
<th>Unused</th>
<th>Unclear</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18%</td>
<td>61%</td>
<td>21%</td>
</tr>
</tbody>
</table>

**BY MAIN RESEARCH AREA**

<table>
<thead>
<tr>
<th>Science / Technology</th>
<th>Realized</th>
<th>Unused</th>
<th>Unclear</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22%</td>
<td>62%</td>
<td>16%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Humanities</th>
<th>Realized</th>
<th>Unused</th>
<th>Unclear</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21%</td>
<td>33%</td>
<td>46%</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Realized</th>
<th>Unused</th>
<th>Unclear</th>
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<tbody>
<tr>
<td></td>
<td>15%</td>
<td>66%</td>
<td>19%</td>
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<table>
<thead>
<tr>
<th>Social Science</th>
<th>Realized</th>
<th>Unused</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12%</td>
<td>60%</td>
<td>29%</td>
</tr>
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</table>

**BY UNIVERSITY**

<table>
<thead>
<tr>
<th>Technical University of Denmark (DTU)</th>
<th>Realized</th>
<th>Unused</th>
<th>Unclear</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>31%</td>
<td>56%</td>
<td>12%</td>
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### Open Access Potential

#### BY UNIVERSITY

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<td>Technical University of Denmark (DTU)</td>
<td>31%</td>
<td>56%</td>
<td>12%</td>
</tr>
<tr>
<td>Roskilde University (RUC)</td>
<td>29%</td>
<td>42%</td>
<td>29%</td>
</tr>
<tr>
<td>Aalborg University (AAU)</td>
<td>19%</td>
<td>54%</td>
<td>27%</td>
</tr>
<tr>
<td>IT University (ITU)</td>
<td>18%</td>
<td>65%</td>
<td>18%</td>
</tr>
<tr>
<td>Copenhagen University (KU)</td>
<td>17%</td>
<td>64%</td>
<td>19%</td>
</tr>
<tr>
<td>University of Southern Denmark (SDU)</td>
<td>15%</td>
<td>62%</td>
<td>23%</td>
</tr>
<tr>
<td>Aarhus University (AU)</td>
<td>13%</td>
<td>66%</td>
<td>21%</td>
</tr>
<tr>
<td>Copenhagen Business School (CBS)</td>
<td>4%</td>
<td>67%</td>
<td>28%</td>
</tr>
<tr>
<td>Main Research Area</td>
<td>Realized</td>
<td>Unused</td>
<td>Unclear</td>
</tr>
<tr>
<td>--------------------</td>
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<td>60%</td>
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Realized Open Access Potential:

- **Actual**
  - 2013: 17%
  - 2014: 18%
  - 2015: 80%

- **Projected (c.f. National Strategy)**
  - 2020: 100%
Open Access Indicator — Development for: Humanities

Realized Open Access Potential:
- Actual
- Projected (c.f. National Strategy)

- 19% in 2013
- 21% in 2014
- 80% in 2016
- 100% in 2021
Transparency and reuse

Open Access Indicator — Statistics for 2014

Open Access Potential: Realized, Unused and Unclear

Indicator Year: 2014

Description:
- Overview
- Technical
- At the Danish Agency for Science, Technology and Innovation

DOWNLOADS
(Indicator year: 2014)

- Summary data
- Publications in scope
- Records in scope

The datasets behind the online visualisations

The scope. All publications (deduplicated) in scope. The basis of the summations and aggregations

The scope. All publications (including duplicates) in scope. The basis of the summations and aggregations at the university level.
Architecture of the Open Access Indicator (1/2)

1. OAI-PMH harvest from universities
2. Subset with duplicates (for university calculation)
3. Deduplication using data from BFI (Bibliometric Research Indicator)*
4. Resulting in the “target field without duplicates”.

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* BFI (Bibliometric Research Indicator)
*What is the Bibliometric Research Indicator

• Or just BFI
  • $B$ for Bibliometric
  • $F$ for Forskning = research
  • $I$ for Indicator

• Funding allocation model based on points given to institutions based on publishing in
  • A number for “expert” selected publication channels: journals and selected publishers for books
  • A common data model, all institutions have focus on providing as correct and full data as possible, because it is used for the allocation of funds.
5. Check with DOAJ for Gold OA status in combination with BFI authoritative journal list

6. Check whether the article may be downloaded from the university (Green Open Access)

7. Check whether the article is published in a journal with Green OA potential using Sherpa/Romeo*

8. Two outputs:
   a. University statistics (with duplicates)
   b. National statistics (without duplicates)

9. Published on the Danish National Research Database

10. Download as CSV file
*Definition of Open Access potential*

- In the DEFF OA-barometer pilot project the ‘green’ category alone was used as the indicator for OA-potential
- However this will produce false-negatives
- Commissioned a survey of the actual potential
- SHERPA/RoMEO categories:
  - Green = OA Potential (pre and postprints)
  - Blue = OA Potential (postprints)
  - Yellow ≈ likely OA Potential
  - White ≠ not likely to have OA Potential
- Analysis concluded to include “Yellow” in the calculation of OA-potential
Definition of Open Access potential

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Coming add-ons and possible improvements

- Add External repositories and authoritative check repository list, including Danish universities OJS-servers
- Handling the OA-potential calculation better including long embargo periods and exceptions in national licenses
- More frequent measurements/harvests (monthly)
Thank you!

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Lise Mikkelsen, DTU
Hanne-Louise Kirkegaard and Jonas Bak, Ministry of Higher Education and Science