Open Access & research metrics

Establishing reliable baselines for science policy

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Outline of the presentation

- Study 1: *2014 Dutch baseline analysis*
- Study 2: *2015-2017 OpenAIRE Impact analysis*
- A current national discussion on OA scores
- Study 3: Finding new solutions
- Results of the new approach
- Conclusions and discussion

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Pre-ambule

Study 1:
Baseline OA measurement of Dutch science

- The debate on *Openness* and *Open Access* started some years ago in the Netherlands. In the light of this debate, our Ministry of Science, Education & Culture wanted to know about the then current situation on *Open Access* publishing by Dutch academics ("nul-meting"). *

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* The paper related to this research is accepted for publication by JASIST

Defining Open Access in Web of Science

Method I: By selecting OA output from the WoS desktop interface:

- Select and download OA output from WoS on internet;
- Link that to the CWTS in-house version of WoS
  - ***Older papers that are backwardly labeled as OA !***

Method II: By linking the DOAJ list with the CWTS WoS database:

- Select the papers from journals on the DOAJ list;
- Use the doi's to link both DOAJ and WoS to each other
  - ***Many older papers in WoS do not carry DOI's yet !***

Method III: By linking the DOAJ list via ISSN with the CWTS WoS database

- Use the ISSNs on both ends (DOAJ) and WoS
  - ***Journals that contain only a few OA format papers are considered completely OA, and***
  - ***… this applies in a backward fashion, thereby re-labeling former non OA journals to now OA format journals***

Study 2:
Impact measurement of European science

- OpenAIRE is a European project consortium focusing on *Openness* in science, in the current phase of the study we were asked to analyze openness with bibliometric means, in other words, to measure the impact of *Open Access*.
- In the study we focus on FP-7 projects as visible through the OpenAIRE database. *

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* The paper related to this research is in preparation

Issues with linking pre-defined OA labels from OpenAIRE to Web of Science

Data arrive pre-formatted

- No control over data structure (errors, duplicates, lacking basic bibliographic info)

OA is pre-defined

- No control over OA label definitions (Green, based on OpenAIRE preferences)

Conclusion based upon studies

- *Currently OA is not well defined within the databases used for bibliometric studies (Study 1)*
- *A pre-defined OA labeling requires insight in the methods of constructing that label's definition (Study 2)*
- *Comparing such studies is also complicated*
  - *National vs selected output*
  - *Defined in various ways*
- *Hampering definitions and lack of control over the raw data get bibliometricians nervous!*

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A recent policy debate in the Netherlands

A recent debate on OA in the Netherlands

- **Only Gold OA is policy relevant, only 12% of the Dutch output is published in OA** (Rathenau Institute)
  - Stated in the recent AWTI report on the state of affairs of Dutch science
- **Dutch OA output amounts up to 30-40%** (UU Library)
  - Reaction on that report, based upon Canadian research in support of the EUOA policy

- Actually, these two statements are both right *and* wrong !

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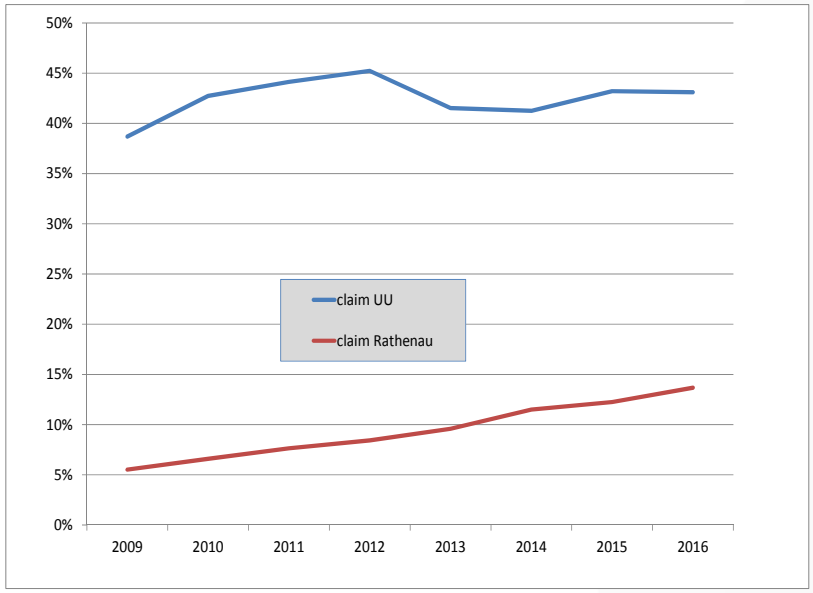
The OA situation in the Netherlands



- **Claim #1** (Rathenau Institute)
  - **Right**: Gold OA is about 12-14% in 2014/2016
  - **Wrong**: ignores the initiatives for Green OA, as labeling Green OA as 'non policy relevant'

- **Claim #2** (UU Library)
  - **Right**: the total Dutch OA output is about 43% in 2016
  - **Wrong**: as it is based upon Canadian research, which is random-sampling/harvester based

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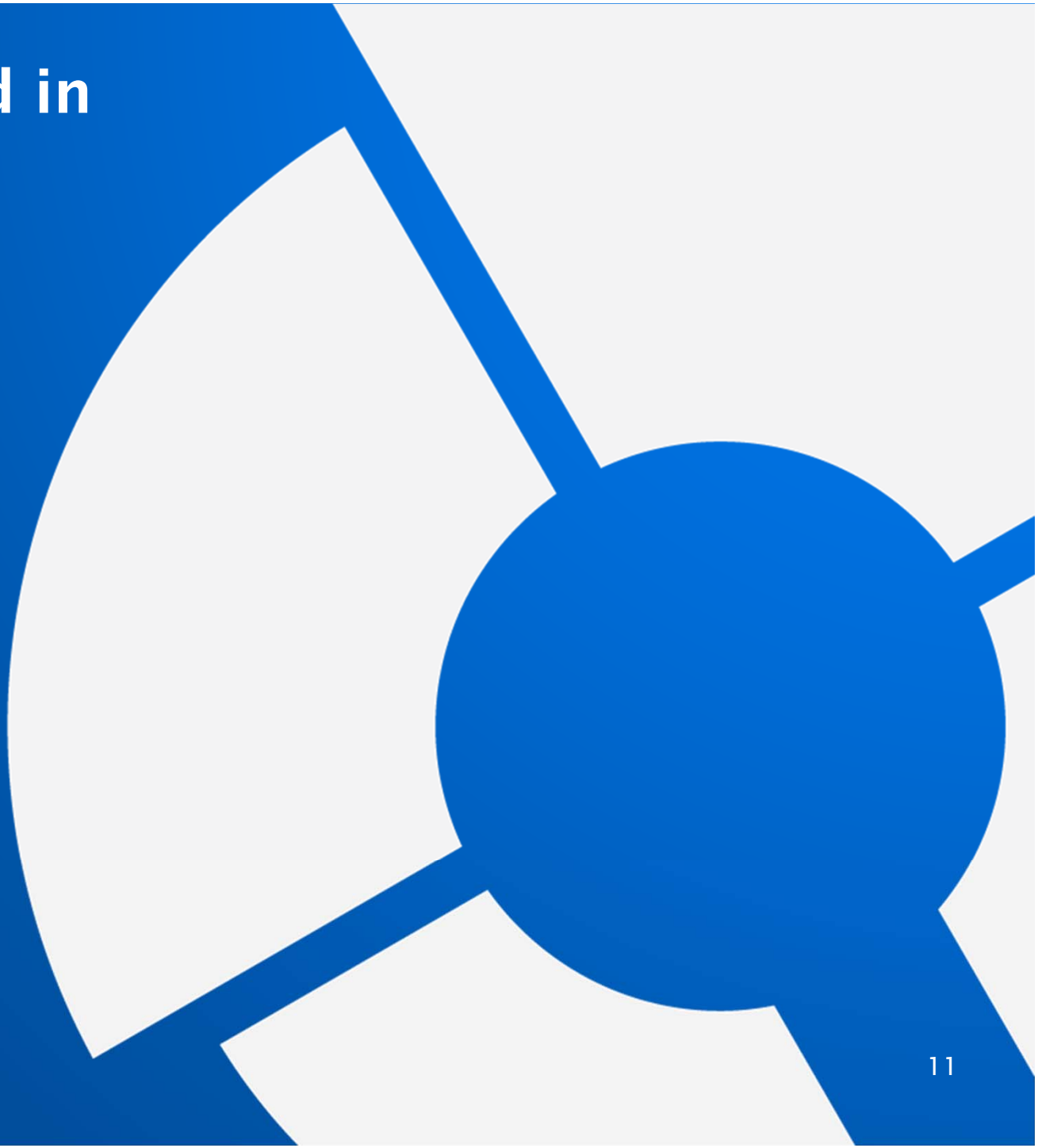
Indicators used in the study



Indicators selected for the analysis of OA in WoS

Number of publications: *P*

- The number of normal articles, reviews, and letters as processed for journals covered in the Web of Science database

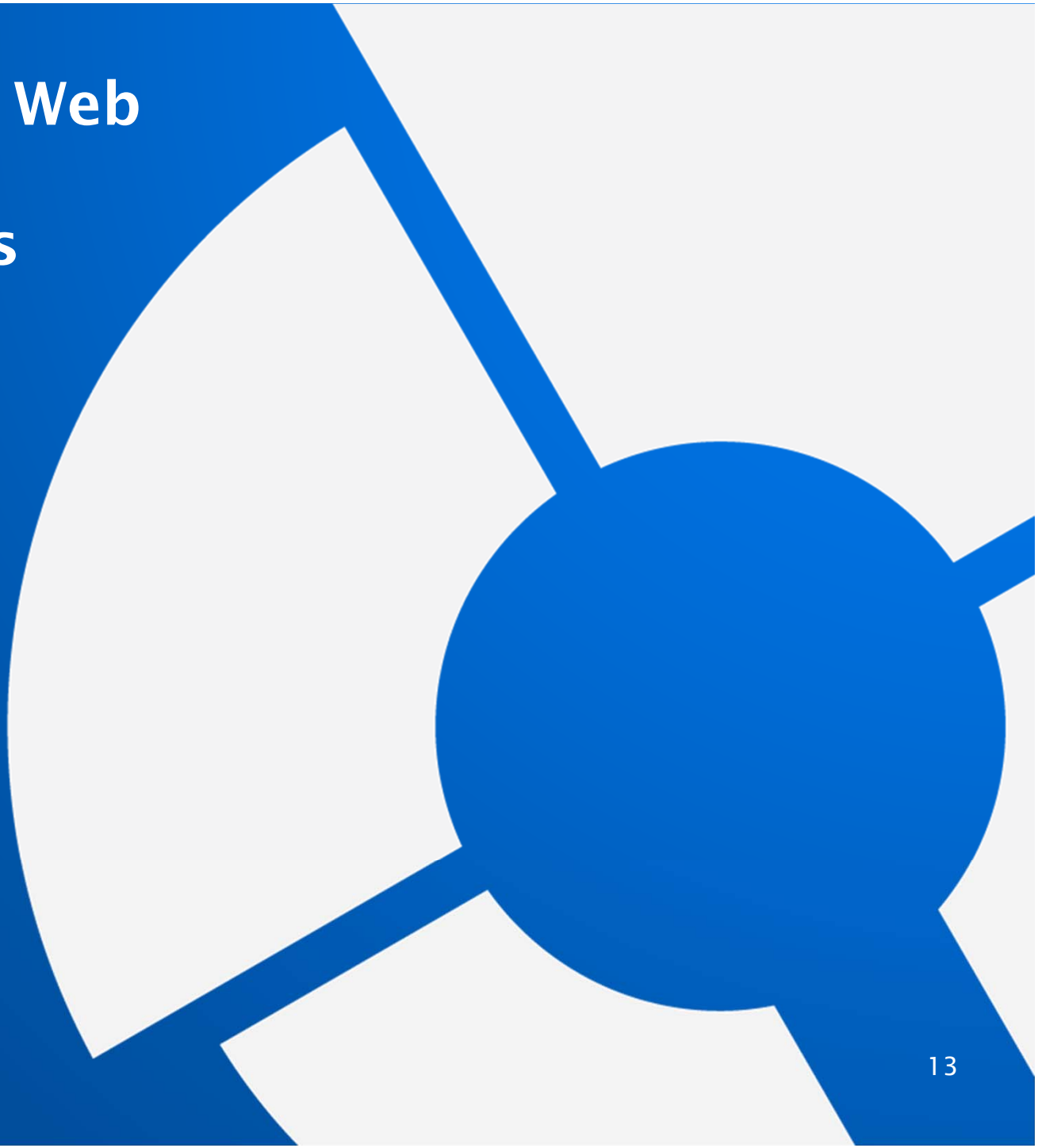
Field normalized citation impact: *MNCS*

- The comparison of the real impact of a set of publications with expected citation scores, based upon output similarity in the exact same fields, years, and documents.

Scientific cooperation is defined by mutually exclusive classes

- SI = Single Institute, only one address mentioned
- IC = International Cooperation, two country names are mentioned
- NC = all remaining publications

Defining OA in Web of Science via several sources



Define sources for creation of OA labels

Data sources should comply with two criteria:

- Sources have to be sustainable
  - *Data are in the public domain, without direct risk of disappearing behind a pay-wall*
- Sources need to be legal
  - *Inclusion in the data source should not be based on 'illegal acts' by individual researchers*

Data sources that did not comply with the second requirement are:

- *ResearchGate*
- *SciHub*

Sources that comply with both criteria

The DOAJ list	➔	Gold OA
The ROAD list	➔	Gold OA
CrossRef	➔	Green OA
PubMedCentral	➔	Green OA
OpenAIRE	➔	Green OA

Currently, we are working on oaDOI for inclusion in the process

A next challenge is to define Hybrid OA in the database:

- Sherpa-Romeo as a source
- Identify from the database, based on bibliographic information

Updating the database and challenges …

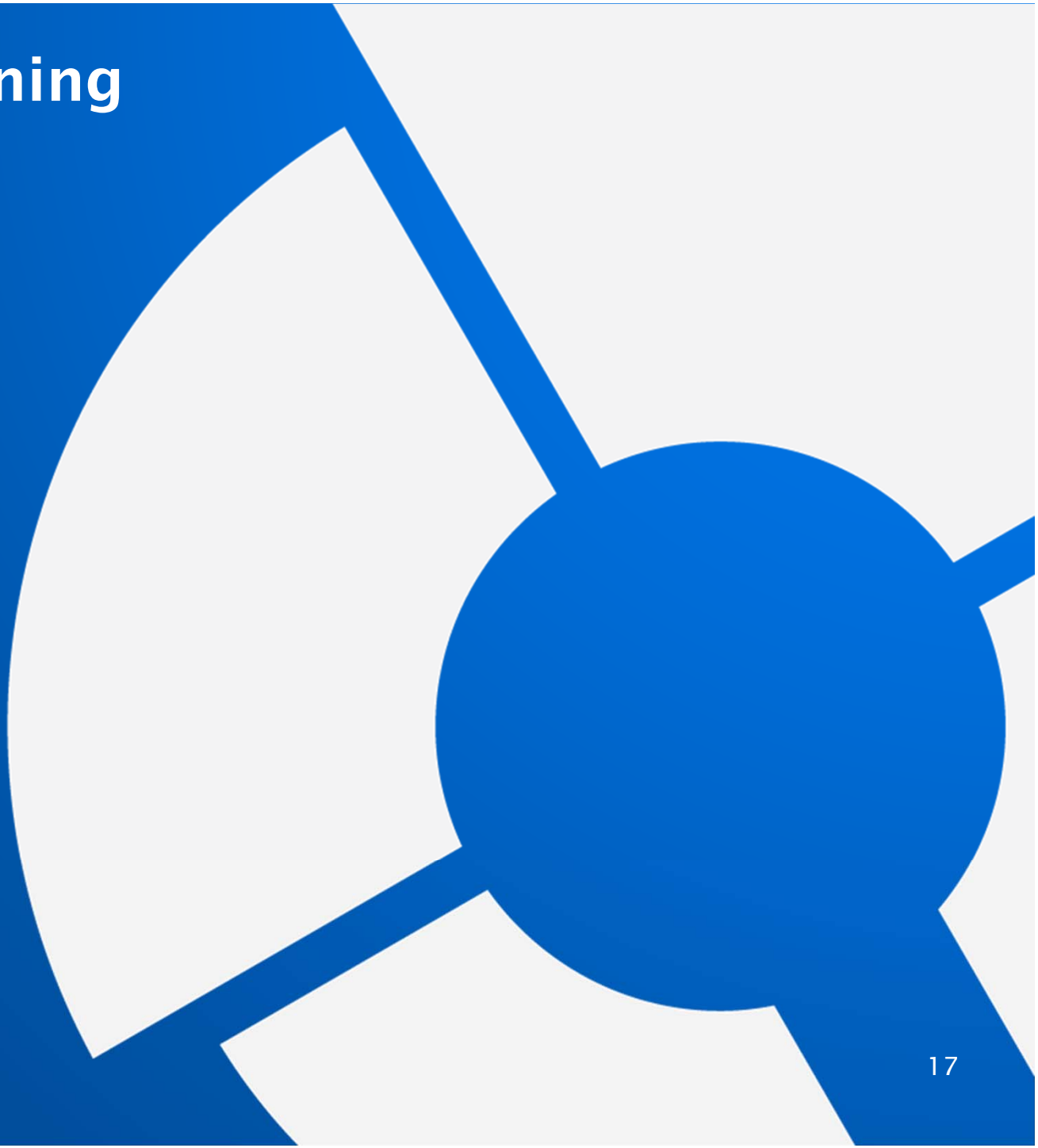
The DOAJ list ➔ Decided to change the contents of the list

OpenAIRE ➔ Has changed the document types re-labeling articles, to pre-prints

In updating the database we were challenged to consider changes in the sources underlying the database:

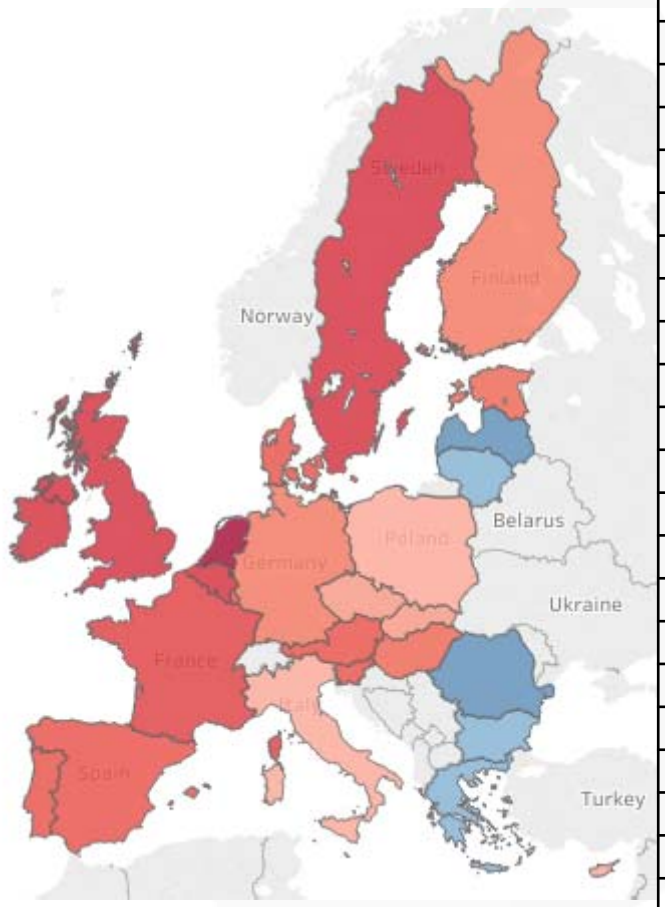
- *Remain faithful to the principles (**Legal** & **Sustainable**),*
- *… make our outcomes reproducible, …*
- *… and as such follow the developments of the selected sources !*

Results of defining OA in Web of Science



Results of the OA labeling analysis

Country	%OA in 2015	%OA in 2017
LATVIA	20%	21%
ROMANIA	20%	20%
BULGARIA	23%	25%
GREECE	23%	27%
LITHUANIA	23%	22%
MALTA	23%	30%
CYPRUS	27%	31%
ITALY	27%	33%
POLAND	27%	29%
CZECH REPUBLIC	28%	30%
SLOVAKIA	28%	26%
FINLAND	30%	33%
GERMANY	30%	33%
ESTONIA	31%	33%
HUNGARY	31%	35%
AUSTRIA	32%	36%
DENMARK	32%	38%
LUXEMBOURG	32%	40%
PORTUGAL	32%	36%
SLOVENIA	32%	37%
SPAIN	32%	37%
FRANCE	33%	36%
BELGIUM	34%	41%
GREAT BRITAIN	34%	44%
IRELAND	34%	39%
SWEDEN	34%	38%
NETHERLANDS	37%	43%

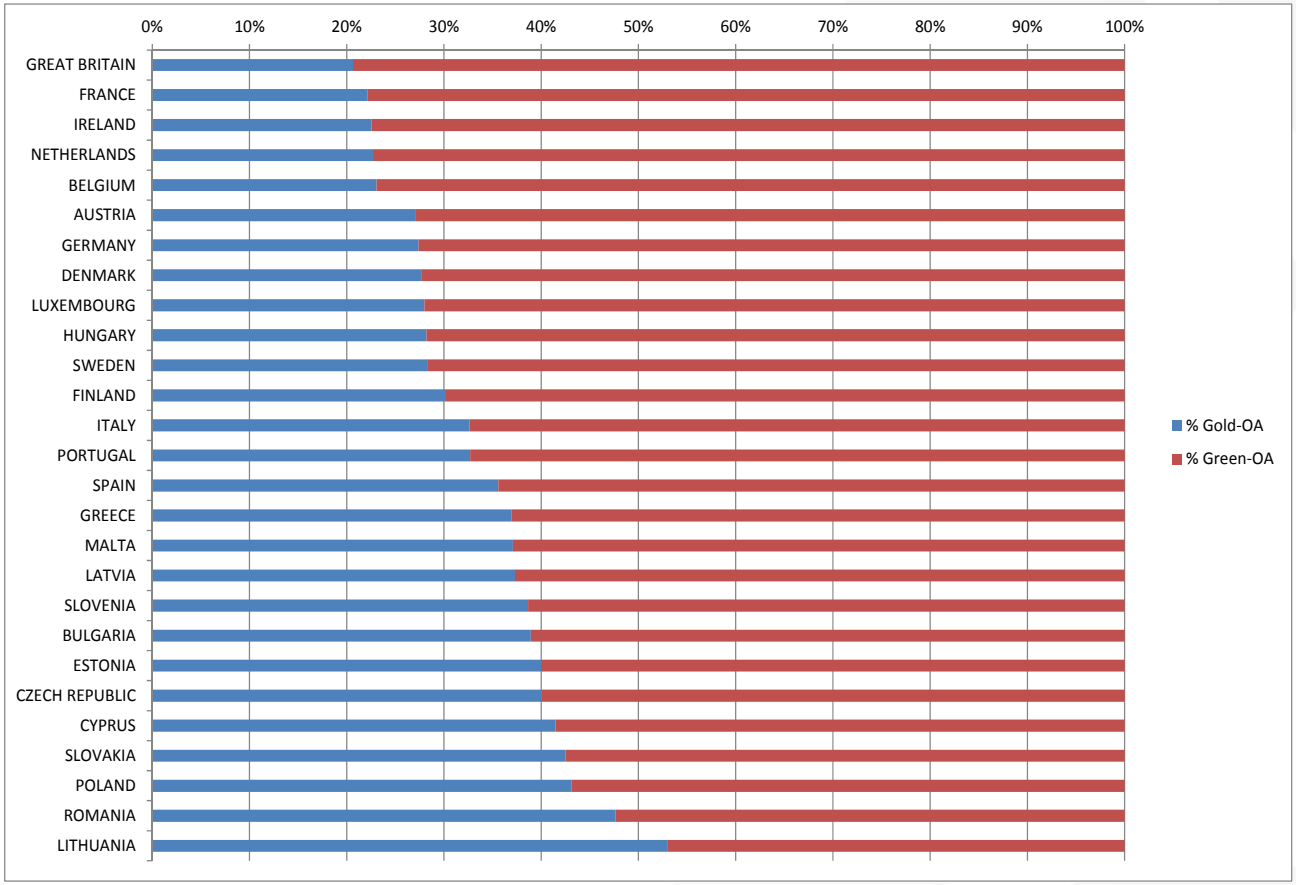


(red >25%, blue =< 25%)

Output for EU countries:

- Cover the period 2009-2016
- WoS articles, reviews, letters
- Rather arbitrary threshold of 25% !
- Color indicates penetration of OA
  - Blue, OA < than 25%
  - Red, OA >= than 25%
- Europe is becoming more OA focused !

Distinguish between Gold and Green OA



Output for EU countries:

- Green Focus is in North-Western Europe
- Gold OA focus is in many Eastern European countries
- Reasons for this:

1) development of infrastructure in North West Europe

2) Stronger grip of the publishing industry on Eastern European countries

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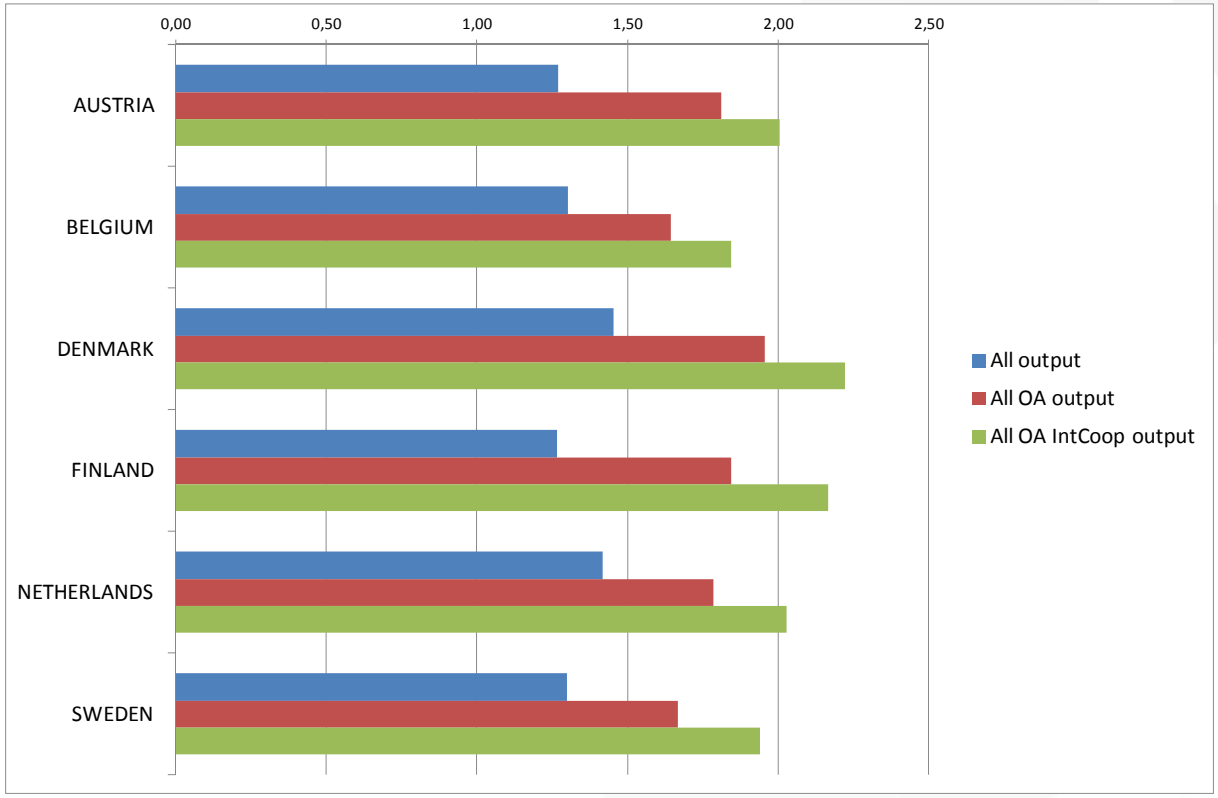
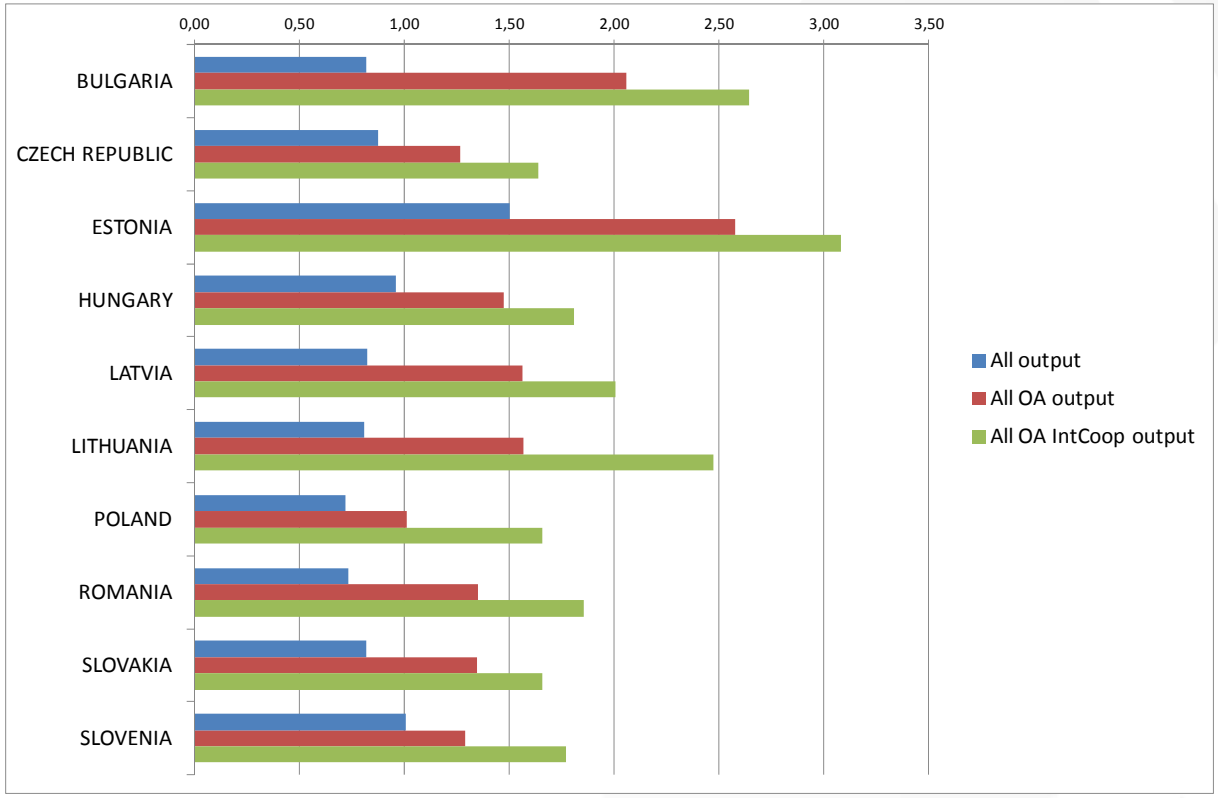
1 - OA, international cooperation, & research impact



Smaller EU countries:

- First time 'proof' of effect of OA, on the national scale, with a full set of WoS papers
- Green OA is a game changer when included in the analyses (contrary to Study I)
- International cooperation OA output reaches even higher levels

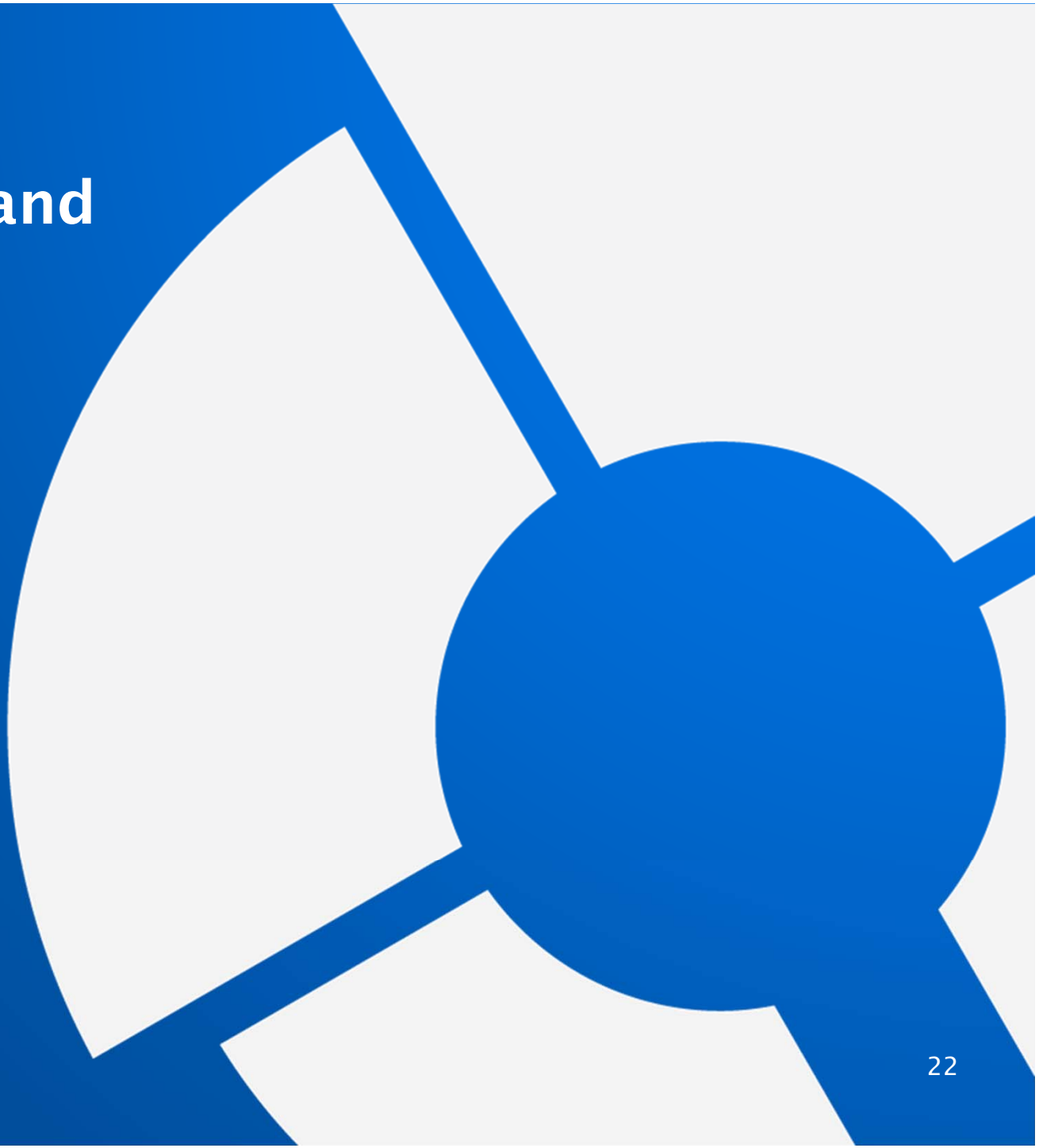
2 - OA, international cooperation, & research impact



Eastern European situation

- The overall impact scores still lag behind the north west of Europe
- However, OA published output has a strong effect, as it is on worldwide impact level or above …
- As we have seen, this is mostly based upon Gold OA output
- International cooperation OA output reaches even higher levels

Conclusions and discussion



Conclusions based upon new approach

- *The use of the WoS provides a definite universe of publications that correspond to the mainstream international journals, while at the same time allows for advanced citation analyses*

- *Our operationalization of 'Open Access evidence' is flexible and exportable (to other datasets, but also to fields and countries)*

- *The methodology will be based on open, transparent and accessible tools, which makes it cost-efficient, replicable and exportable to any set of publications*

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Discussion

- **Urgent need for reliable analyses of OA**
  - Based upon trustworthy data sources:
    - Legal
    - sustainable
  - Based upon clear definitions on OA and its various appearances
  - To support science policy and research management in making decisions on OA publishing
  - On various levels within the science system:
    - National
    - Institutional
    - disciplinary
- **What else do we need for expanding our OA labeling ?**

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Thank you for your attention!

Any questions?
Ask me now, or mail me
Leeuwen@cwts.nl

Inspiration for the studies came from
Clifford Tatum, Paul Wouters,
Wouter Gerritsma, Ron Dekker

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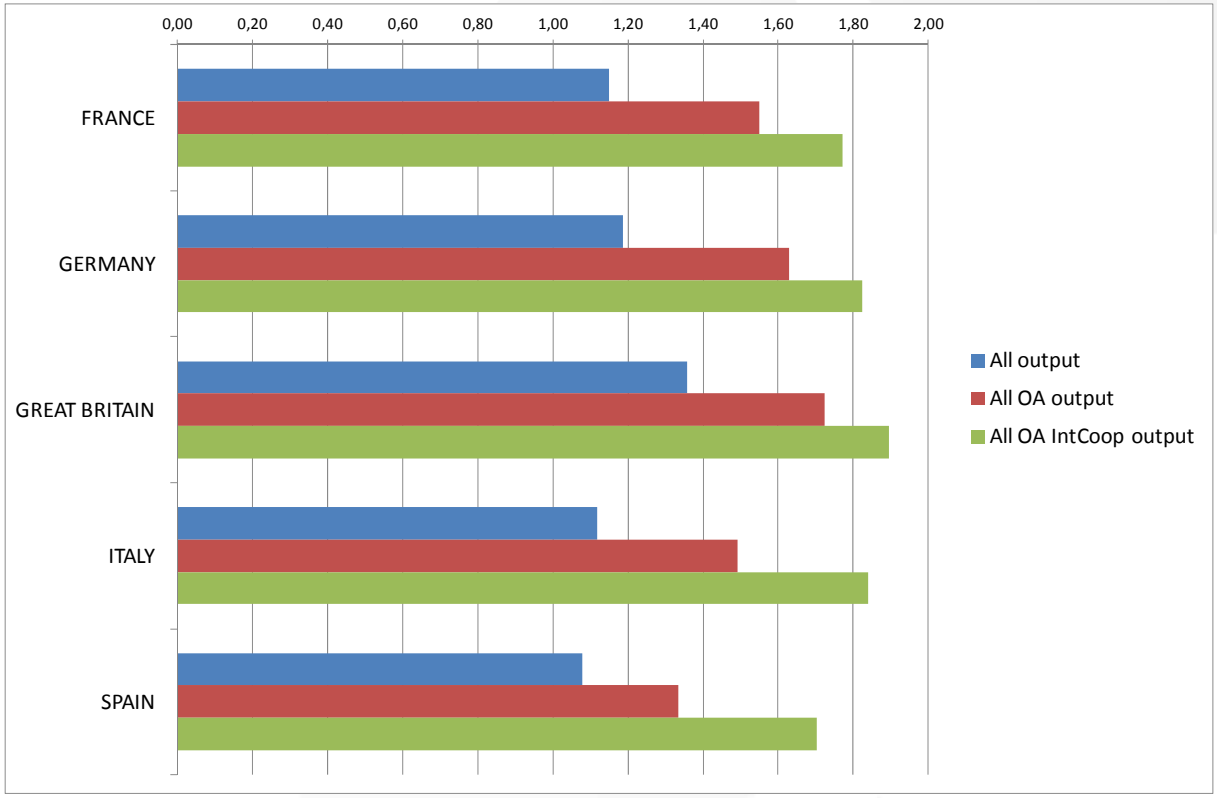
OA, international cooperation, & research impact



OA, international cooperation, & research impact