

*Peer review and bibliometrics in
research performance assessment...*

It's complicated !

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Outline

- *CWTS in the Dutch research assessment landscape*
- *Coverage in bibliometric studies*
- *Comparing Peer Review and Bibliometrics*
- *Changes in the evaluation context*
- *Advantages and disadvantages in bibliometric analysis*

CWTS in the Dutch research assessment landscape

CWTS position in research assessment procedures

- CWTS has been involved in hundreds of assessment procedures.
- Metrics informed the peer review process.
- In 2010, a change in leadership
 - From then on, the role of metrics in evaluation of research became a topic of research
 - Before 2010, this was based on bibliometric intuition
- In the course of time, this intuition became supported by methods to assess adequacy of metrics in assessment

The assessment cycle in the Netherlands

- From 1992 onwards, periodic assessment of research.
- Until 2003, the VSNU was 'in the lead'
- From 2003, the university boards got in the lead
 - a national perspective was lacking
- Application of research metrics in the assessment was not obligatory
- Therefore, the role/position/usage of research metrics never became more formalized
- Evaluation protocols are periodically revised
 - Popping up of specific foci: societal relevance, interdisciplinarity, societal relevance again

A look into the assessment cycle in the Netherlands: From 2003 onwards

- First cycle (2003-2009), the lack of national overview was felt.
- Cycle 2009-2015 created more national perspectives
- From 2015 onwards, academic **and** societal impact
 - Under the influence of DORA, Science in Transition
- Research metrics are more under pressure as ever before !
- Remember: still no direct link between outcomes of research performance assessment and research funding !

Coverage in bibliometric studies

Introduction

- The use of evaluative bibliometrics can only become meaningful when used in a the right context.
- Publication culture of the unit(s) under assessment are shaping that context.
- As such, any bibliometric study should start with an assessment of the adequacy of metrics in that particular context.
- Therefore, CWTS has developed methods to assess that fit of metrics in a certain context.

How to define adequate coverage ?

- In order to determine whether metrics applied in an assessment context are meaningful, one needs to know what is represented through the metrics.
- We distinguish two types of coverage:
 - ***Internal*** (from inside the perspective of the WoS)
 - ***External*** (from the perspective of a total output set)

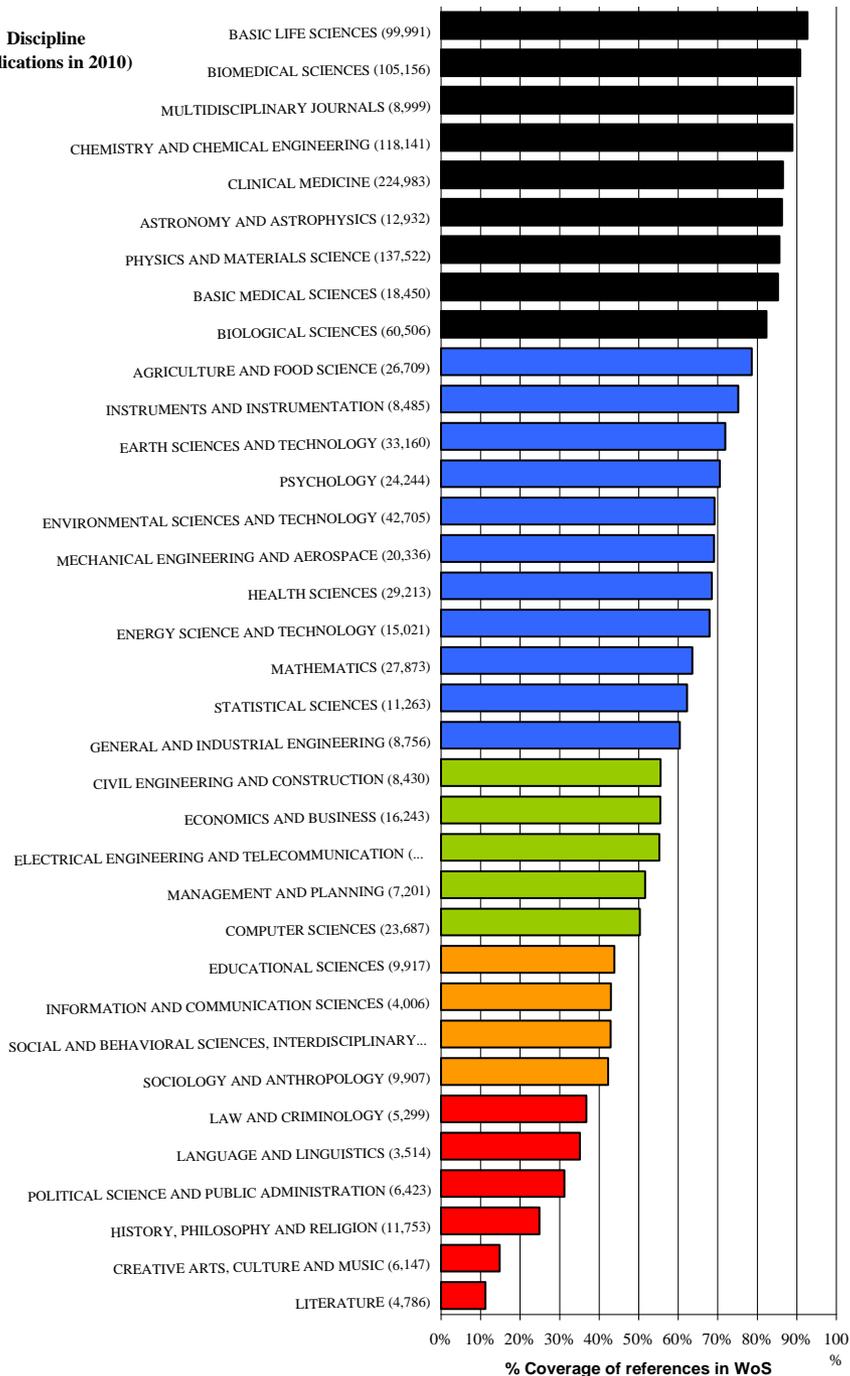
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TI	In basic science the percentage of 'authoritative' references decreases as bibliographies become shorter	S
SO	SCIENTOMETRICS 60 (3): 295-303, 2004	Y
RF	<u>ABT HA, JAM SOC INF SCIT, v 53, p 1106, 2004</u>	Y
	GARFIELD, SCIENTOMETRICS INDEXING , 1979 (BOOK!)	N
	GARFIELD, SCIENTOMETRICS INFORMATION S , v 8, p 403, 1985	N
	<u>GILBERT GN, SOC STUDIES SCI, v 7, p 113, 1977</u>	Y
	<u>MERTON</u>	Y
	<u>RO</u>	Y
	<u>ZUC</u>	Y

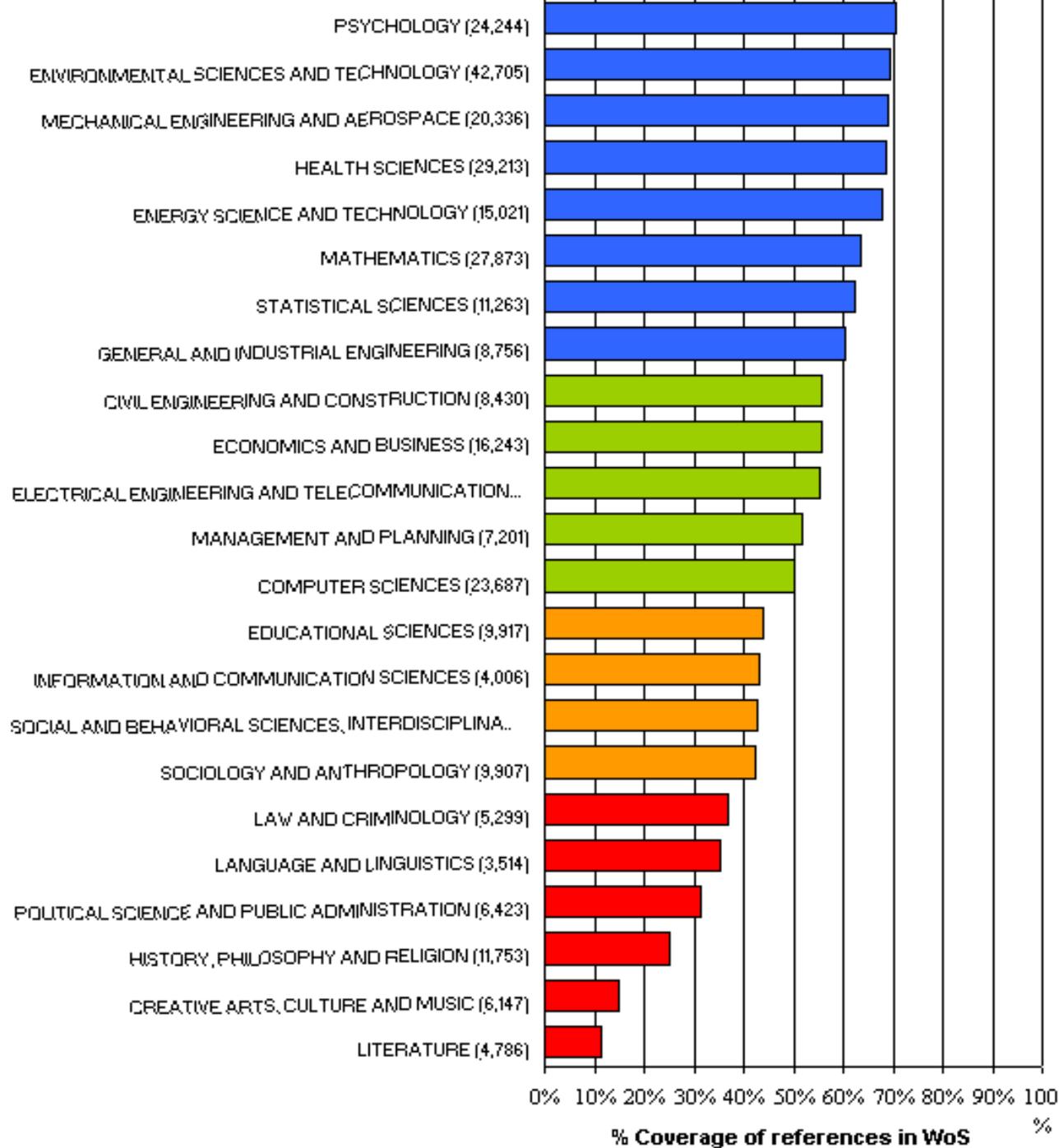
Not in WoS

WoS Coverage
= 5/7 = 71%

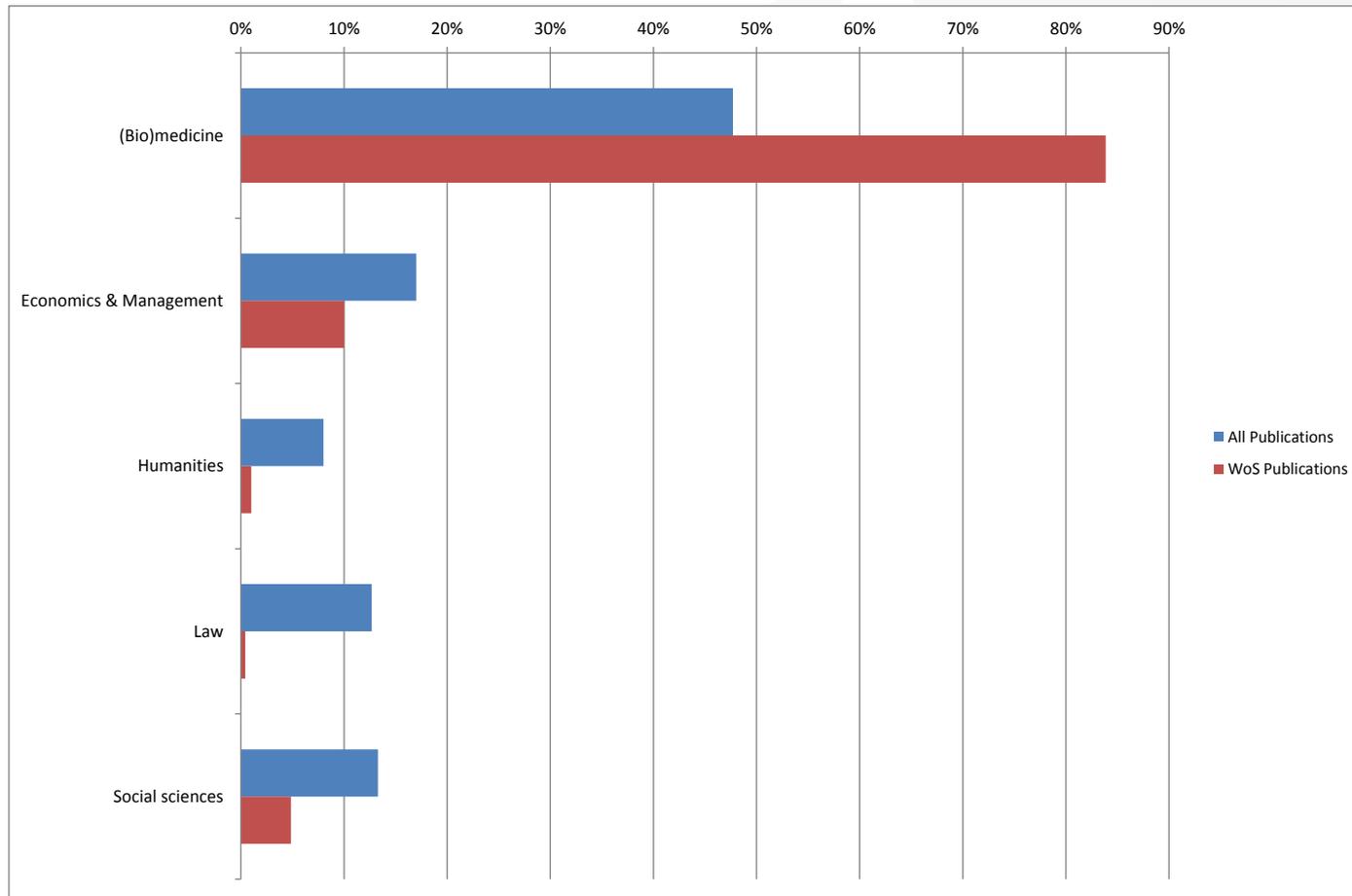
WoS Coverage in 2010 across disciplines

- **Black**=Excellent coverage (>80%)
- **Blue**= Good coverage (between 60-80%)
- **Green**= Moderate coverage (but above 50%)
- **Orange**= Moderate coverage (below 50%, but above 40%)
- **Red**= Poor coverage (highly problematic, below 40%)



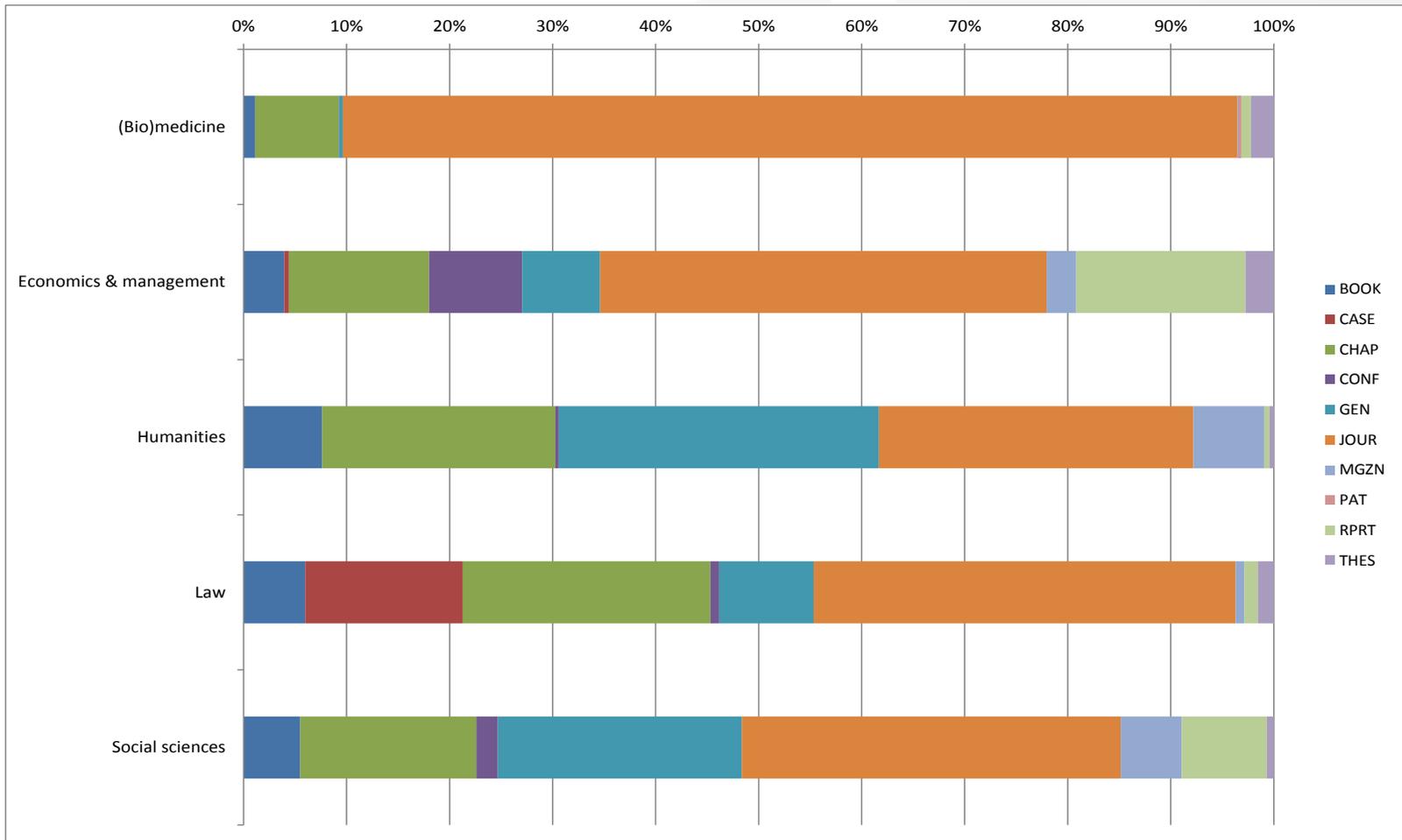


External coverage & journal literature (i)



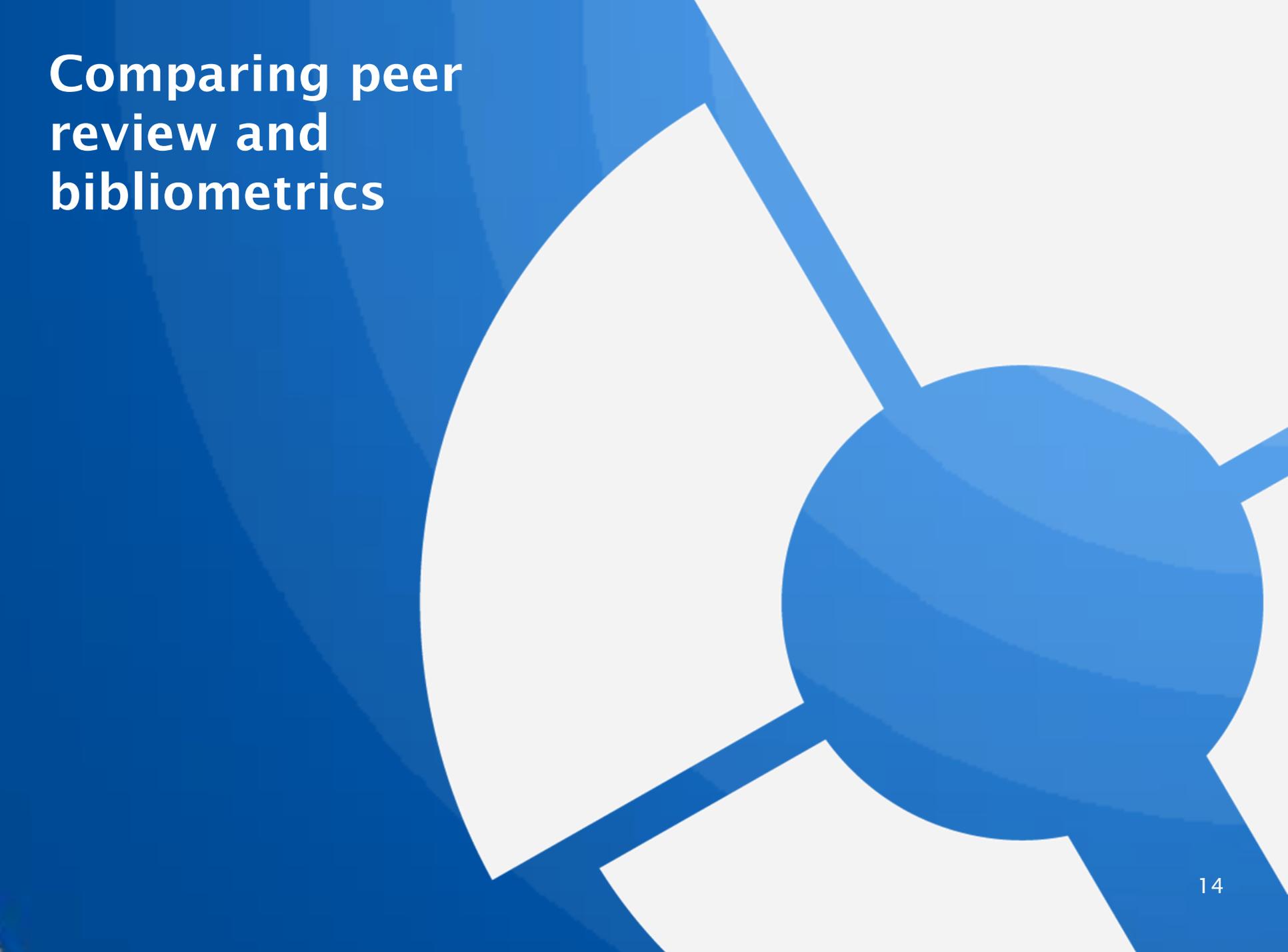
- Production is spread across disciplines.
- In Web of Science, Biomedicine is dominant !

External coverage & journal literature (ii)



- We observe a variety of types of output.
- Journal publishing is important in all disciplines !

Comparing peer review and bibliometrics



Comparing Peer Review and Bibliometrics

- What are the problems related to peer review?
- How does that compare to bibliometrics, when we consider the critical perspectives on peer review?
- What kind of criticisms can be identified when talking about bibliometrics ?
 - Work based upon the perspectives on Peer Review by Fiona Wood

Criticism on both methods

	Peer review	Bibliometrics
Difficulties in proposing outcomes (proposals)	✓	✓
Difficulties in constituting 'Excellence'	✓	✓
Perceptions of bias (organizational/cognitive/personal)	✓	✓
Bias against 'innovative' research	✓	✓
Bias against interdisciplinary research	✓	✓
Difficulties against early career performance	✓	✓
Costs involved	✓	✓
Lack of transparency	✓	✓
Scoring procedures	✓	✓

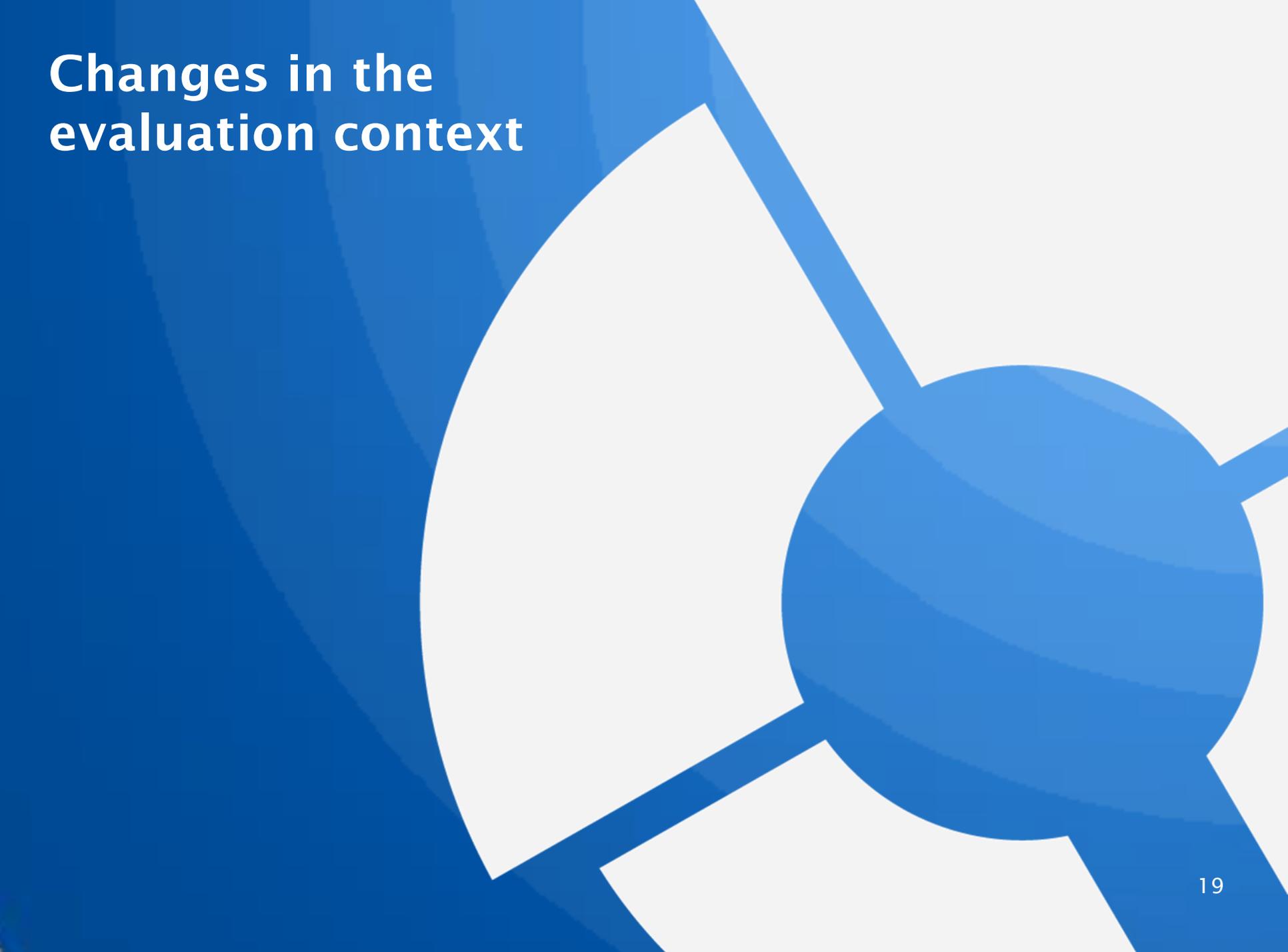
Criticism on the peer review process

	Peer review	Bibliometrics
Problems in peer selection and performance	✓	
Panel membership & operation	✓	
Difficulties with priority setting	✓	
Inherent conflict-of-interest	✓	
Lack of applicant' feedback and appeal mechanisms	✓	

Criticisms on the bibliometric process

	Peer review	Bibliometrics
Do-it-yourself options are available !		✓
Lack of universality!		✓
Claims to be scientifically sound, 'objective', at any time !		✓
Fit of the metrics on the assessed environment		✓

Changes in the evaluation context



Dutch Physics Review in the mid 90's

- “Bibliometric profiles of academic physics research in the Netherlands”, 1996.
- Followed a certain ‘blueprint’ as guiding principle.
- We found some discrepancies between peer review outcomes and bibliometric outcomes (Rinia et al, Research Policy, 1998).

The 'Blue Print'



Writing of the self-evaluation report, send to the peer review committee

Meet the peer review committee: Introduction of bibliometrics

First round of assessments by the peer review committee

Meet the peer review committee: Explanation of bibliometrics

Bring in the bibliometric data

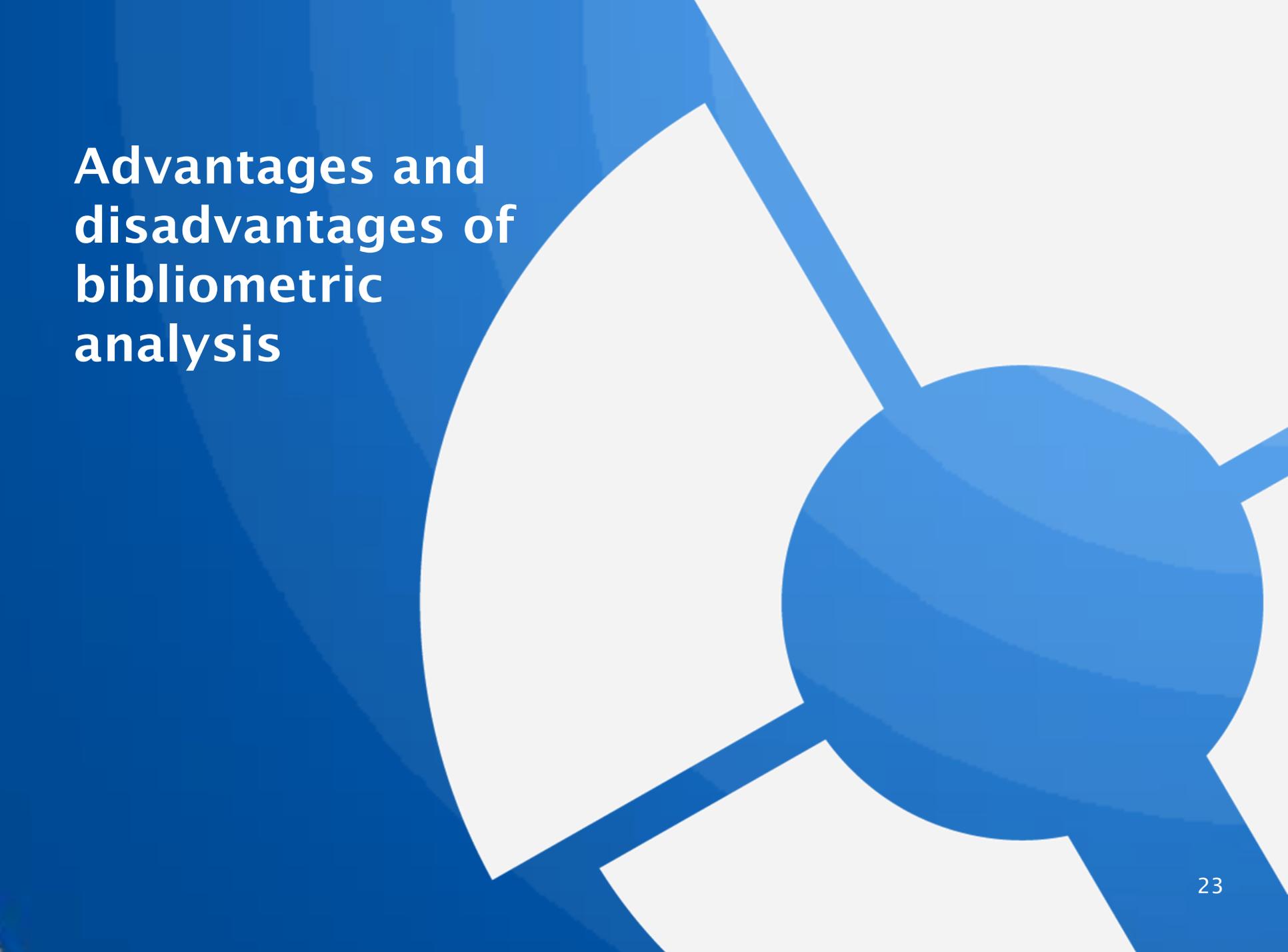
Second round of assessments by the peer review committee

Meet the peer review committee: Discuss the discrepancies

Final judgments by the peer review committee, based also on site visit

Changes in the system

- Peer review members, as citizen bibliometricians, conduct their own metrics
 - Straight forward counting of publications and citations
 - Usage of Journal Impact Factor
 - Usage of h-index
 - Usage of university rankings
- But also, bibliometric analysis seems to increasingly inform researchers and research managers while writing self-evaluation reports
 - Where is the debate taking place, and based upon what ?



Advantages and disadvantages of bibliometric analysis

Some disadvantages of applying bibliometrics ...

- Steers away from more qualitative considerations.
- Metrics shape as much as measure scientific activity.
- People tend to forget we are talking about *'indicators'*.
- Tends to stimulate one-dimensional thinking.
- It requires skills to calculate and interpret results.
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Some advantages of applying bibliometrics ...

- It offers insights into underlying structures and patterns.
- It is a strong *complementary* tool to peer review.
- It is relatively stable in time.
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Some conclusions ...

- Bibliometrics should always be combined with peer review,
- ... and preferably conducted by skilled experts !
- Always contextualize the bibliometric scores !
- One better avoids the '*Quick & Dirty*' indicators !
- Advanced bibliometrics can be very helpful in research management, at various levels.

Thank you for your attention!

**Any questions?
Ask me now, or mail me
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