THE CoARA INITIATIVE: THE ISSI PRESIDENT'S POSITION

Giovanni Abramo
Laboratory for Studies in Research Evaluation, Universitas Mercatorum (Italy)

Research Evaluation: State of the Art and Future Scenarios
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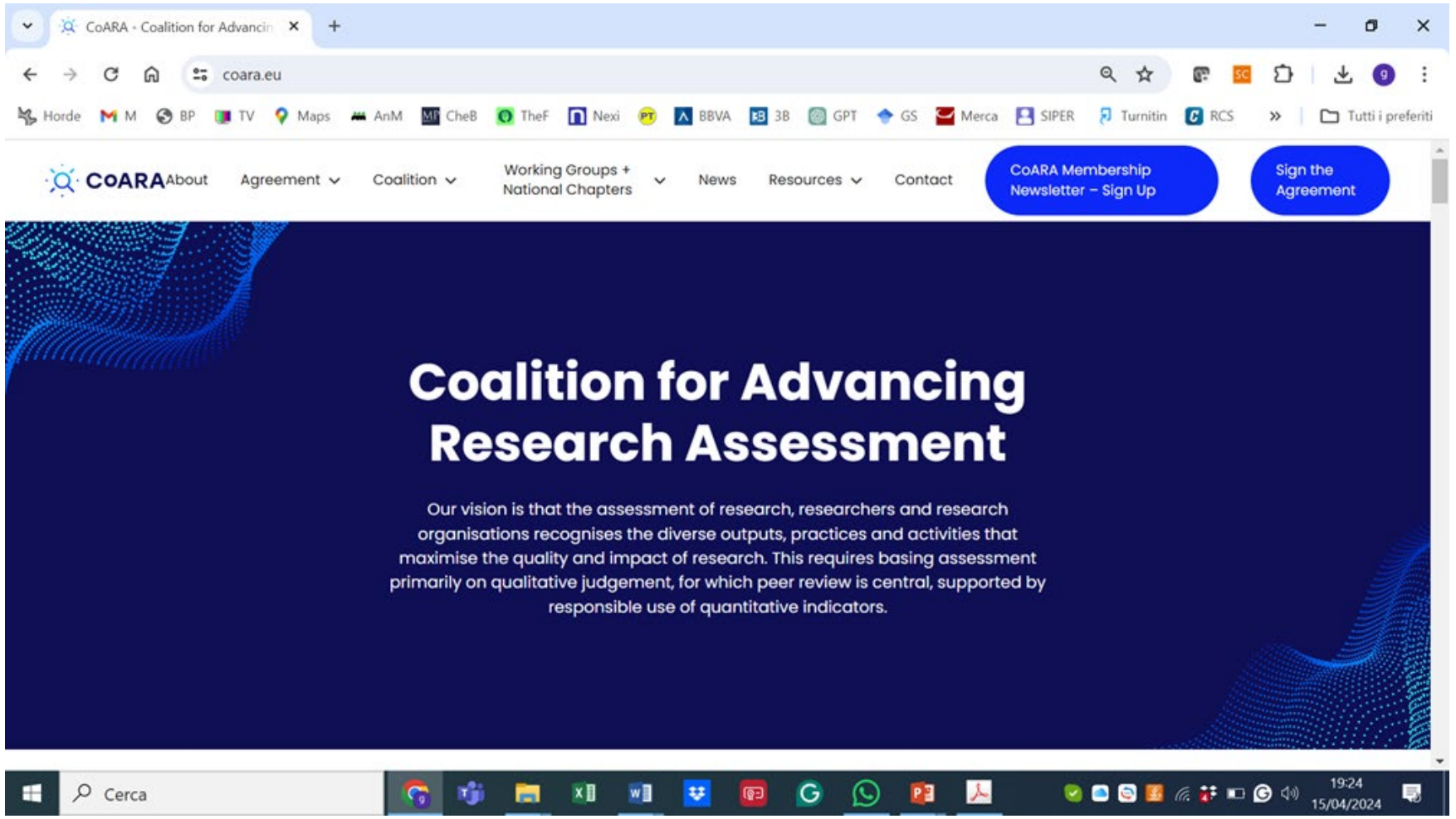
DATA AND METHOD

- CoARA official documents from its web site
- Critical examination based on:
  - Theory
  - Empirical evidence
  - Internal logical arguments

RATIONALE AND AIM OF THE CoARA INITIATIVE



CoARA SYLLOGISM

Premise 1: Research outputs extend beyond indexed publications

Premise 2: Citation-based metrics can only access indexed publications

Conclusion:"… **base assessment primarily on qualitative judgment, for which peer review is central …"**

FACTS

How many research works can peers reasonably assess in practice? The opportunity cost of reviewing is exceptionally high:

- In 2020, reviewers worldwide dedicated over **100 million hours** to peer reviews for journals alone, equivalent to more than 15 thousand years.
- In 2020, the monetary value of the time invested by reviewers in the United States exceeded **1.5 billion USD**.
- The number of articles published in 2022 was 47 per cent higher than in 2016, surpassing the limited or negligible growth in the count of active scientists.

FACTS cont'd

Due to cost and time constraints, **all national peer-review assessments limit the number of works** that can be submitted**:**

- In 2015-2019 VQR, in STEMM fields, **98%** of submitted works were **journal articles**.
- **99%** of submitted journal articles in STEMM were **indexed in Scopus or WoS**.
- Indexed publications received higher **quality scores** (**0.76**) compared to non-indexed works (**0.65**).
- There is a **strong correlation** between the number of indexed and non-indexed works.

FACTS cont'd

VQR 2015-2019 Overview

- Over 182,000 works were assessed
- Experts reviewed about 400 works each in 6-7 months.

Reviewer Demographics

- 97.6% of the reviewers were Italian.

Questions Raised

- Was this a genuine peer-review process, or a flawed scientometric assessment?
- How competent were the reviewers?

CoARA SYLLOGISM

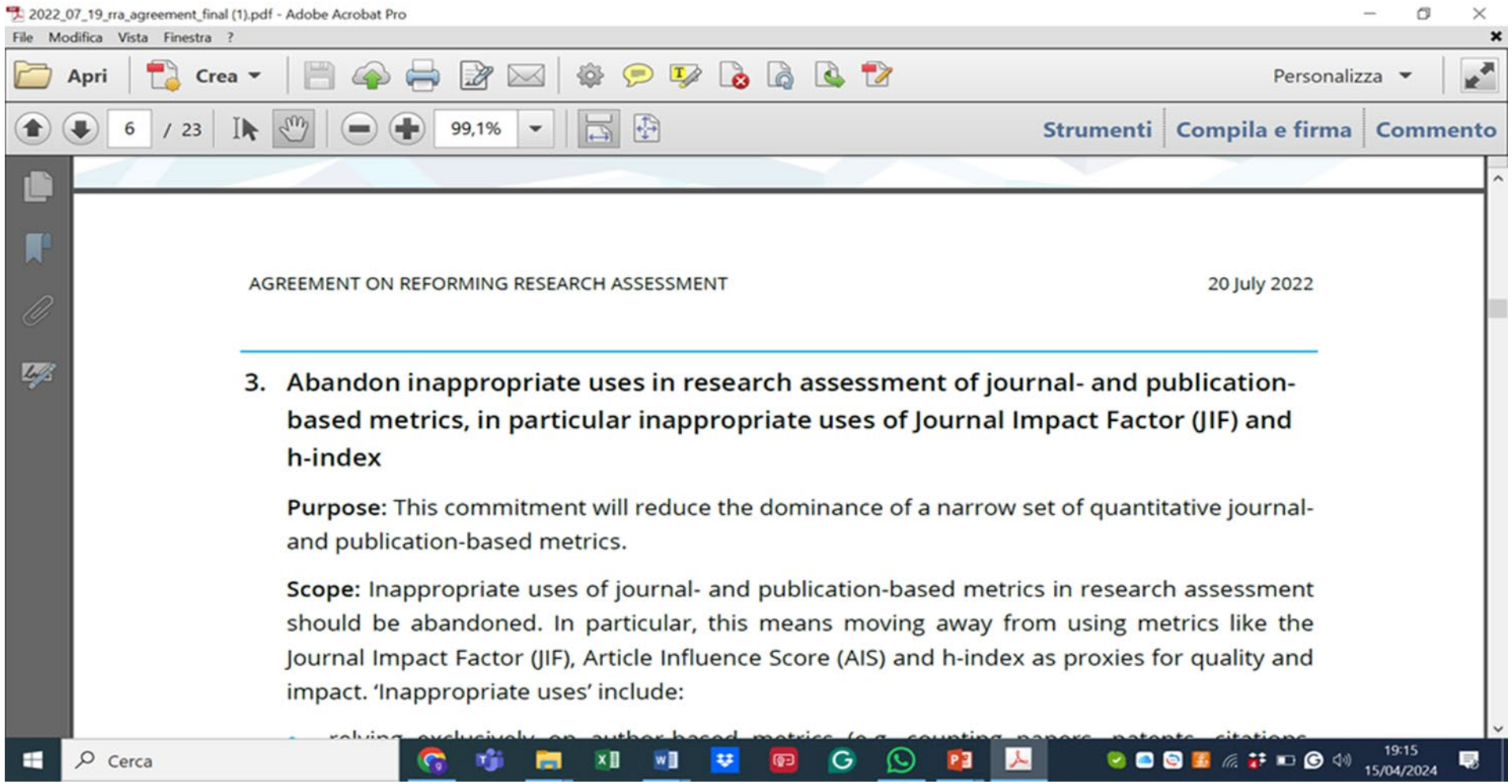
Premise 1: Research outputs extend beyond indexed publications

Premise 2: Citation-based metrics can only access indexed publications

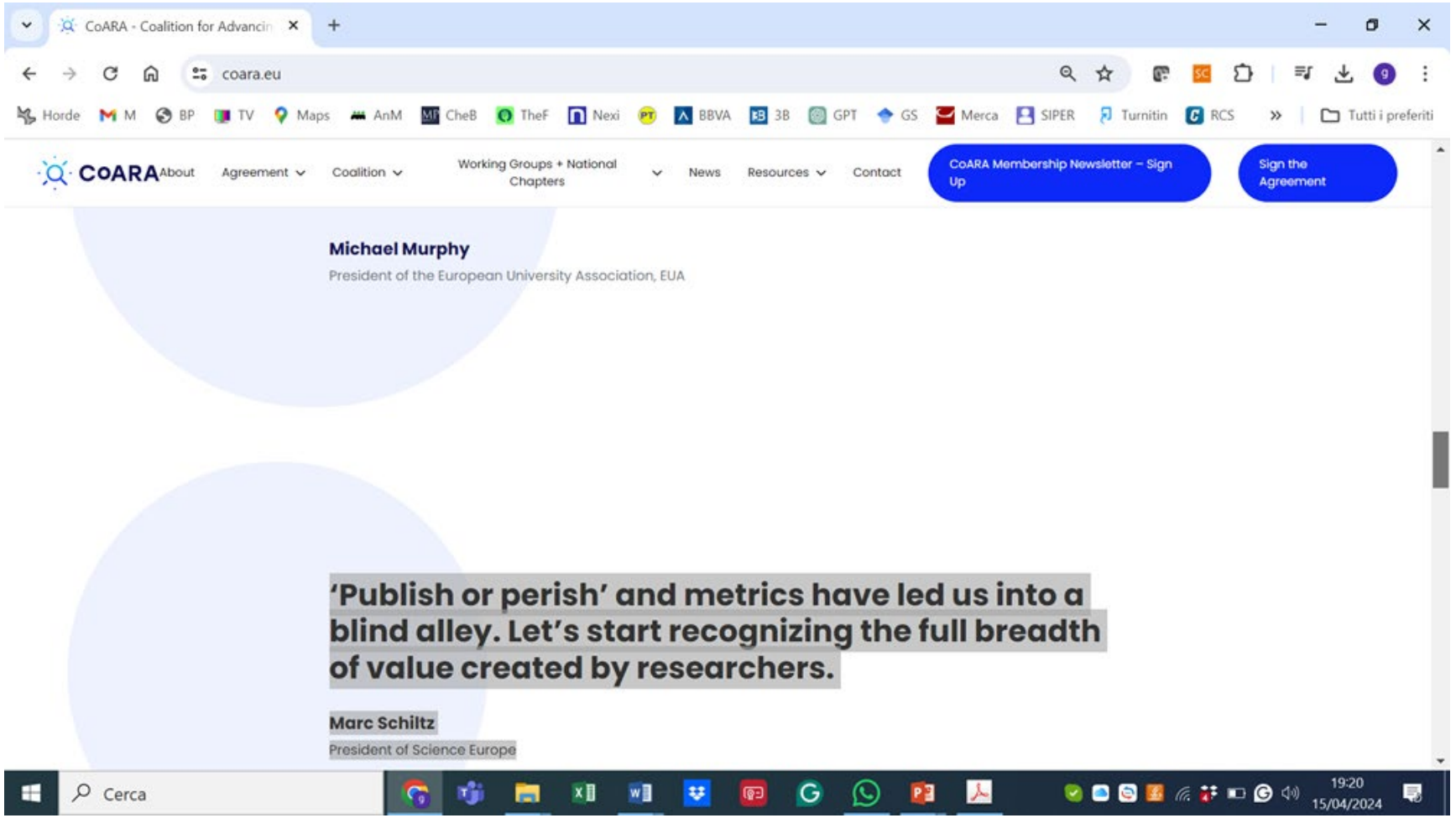
Conclusion: "… base assessment primarily on qualitative judgment, for which peer review is central … "

Or is there an implicit resistance to metric-based assessments?

CoARA AGREEMENT



CoARA STATEMENT



ARE METRICS THE CULPRIT?

Key Insight

According to Schiltz, the primary focus for reform in research assessment should be the metrics themselves, not just the users who may lack the required expertise.

This is somewhat analogous to suggesting that the problem of resistance in specific pathogens lies with the antibiotics themselves rather than with those who use them excessively, inappropriately, and without medical consultation.

PEER REVIEW SOLE OPTION

There are specific contexts where **peer review** remains the sole option:

i) In arts and humanities
ii) In national research systems where a significant portion of research works is not indexed in bibliographic repositories

SCIENTOMETRICS APPLICABILITY

In many other contexts, **scientometrics** proves more suitable than peer review, despite its inability to evaluate non-indexed works:

i) In STEMM and various social science fields (constituting approximately 75 per cent of research)
ii) In countries where researchers primarily publish in indexed scientific venues
iii) As the scale of assessment expands

PEER REVIEW VS SCIENTOMETRICS

In contexts where evaluative scientometrics is applicable, is it more effective to assess research based on:

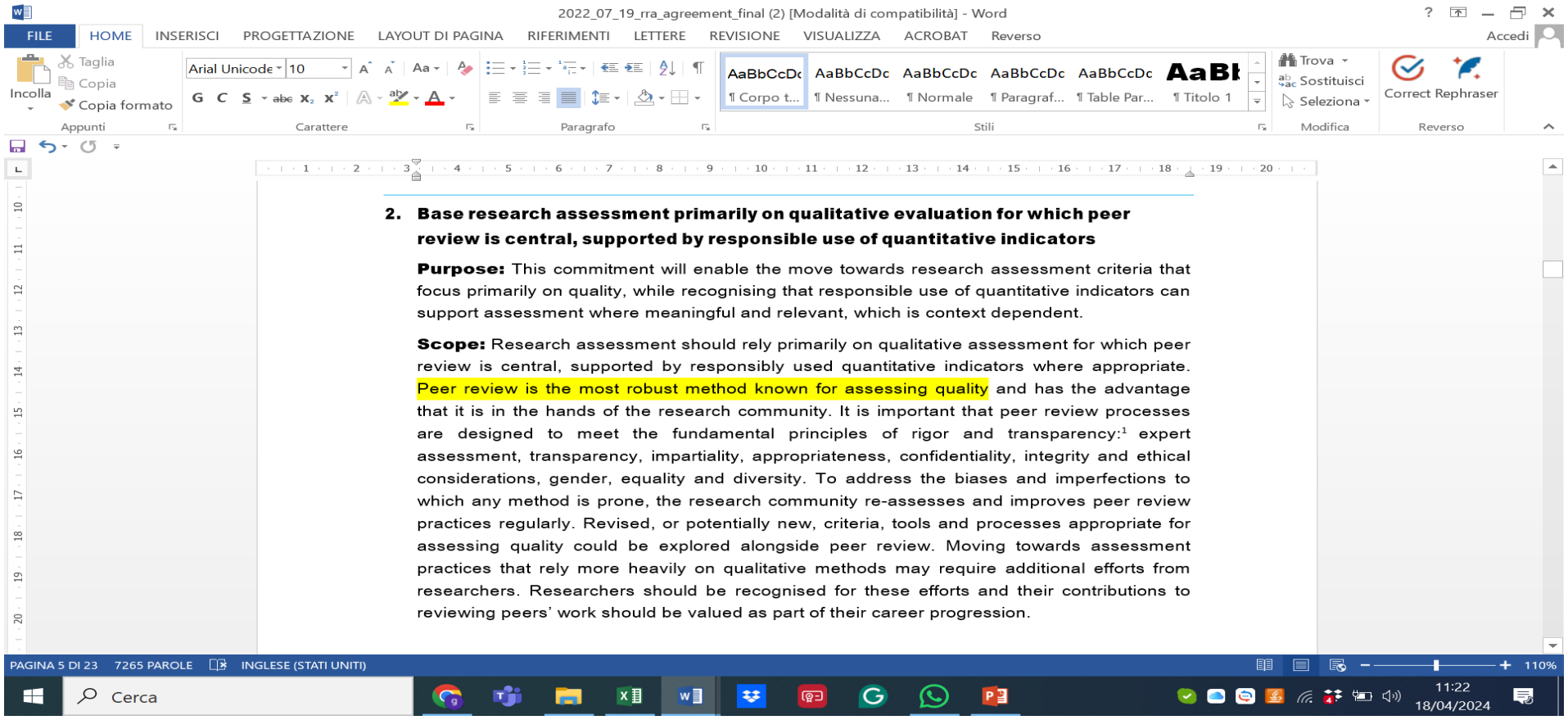
- The "quality" of a limited number of works, including both indexed and non-indexed publications, as proposed by CoARA?
- The “scholarly impact" of an unlimited number of indexed-only publications, which typically number about four times as many as those included in peer-review assessments?

PEER REVIEW VS SCIENTOMETRICS cont'd

I will articulate the comparison across six critical dimensions:

- Robustness
- Accuracy
- Validity
- Functionality
- Cost and time of execution
- Bias

PEER REVIEW VS SCIENTOMETRICS: ROBUSTNESS



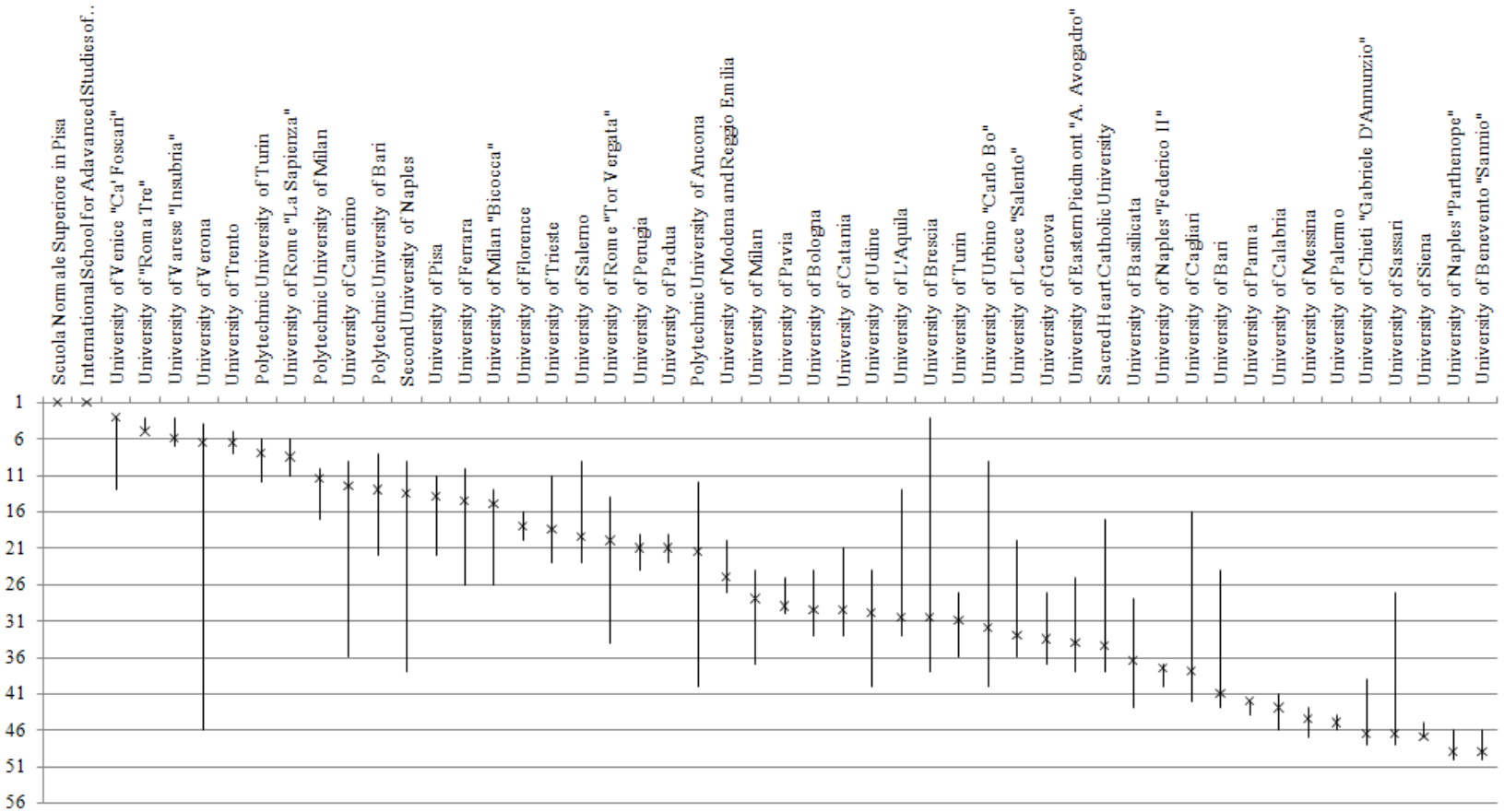
PEER REVIEW VS SCIENTOMETRICS: ROBUSTNESS

- Metric-based assessments are slightly sensitive to the choice of the bibliographic repository (WoS or Scopus)

Vs

- Frequent discrepancies in evaluations by different reviewers
- Quality scores and rankings fluctuate when evaluating individuals and research units, depending on the number of works assessed.

RANKING SENSITIVITY TO THE SHARE OF OUTPUT



Median and range of variation (max – min) of rankings in Physics, when varying output share 8 times

PEER REVIEW VS SCIENTOMETRICS: ACCURACY

- Why rely on two referees when the entire scientific community acknowledges a work's significance through citations?
- Studies show that early citations are better predictors of long-term impact than peer review quality scores.
- Lack of mechanism to address multiauthorship, gender, or academic rank differences in research assessment, disadvantaging institutions with higher concentration of single-authored works, female and/or assistant professors

PEER REVIEW VS SCIENTOMETRICS: VALIDITY

Peer review assessment necessitates the selection of research works by the subjects under evaluation:

- Studies showed that university-led self-selection has led to a reduction in the maximum achievable score in STEMM by 23% to 32% compared to the results from a more efficient selection process.

PEER REVIEW VS SCIENTOMETRICS: FUNCTIONALITY

Consequences of limiting the number of works to be peer-reviewed:

- Without individual-level assessment, organizations are unable to leverage national assessment outcomes for internal selective funding and individual reward schemes.
- Assessment-based funding systems allocate funds based on quality rather than productivity.

➢ PEER REVIEW VS SCIENTOMETRICS: COST AND TIME OF EXECUTION

Typical national peer-review assessment exercises:

- ➢ Are conducted every five years
- ➢ Take two to three years from initiation to publication of results
- ➢ Limits frequency and efficacy for efficient research management and policy-making

Scientometric performance assessments:

- ➢ Can be updated daily if necessary
- ➢ Completed within a few weeks
- ➢ Cost significantly lower compared to peer-review evaluations (U.K.'s REF 2021 projected total cost: £471 million)
- ➢ Enable evaluation of four to five times as many research works

PEER REVIEW VS SCIENTOMETRICS: BIAS

- Personal bias concerns product evaluations, reviewer selection, and those in charge of selection.
- Without recourse to metrics, ensuring effective selection becomes challenging.
- Qualitative judgment-based evaluation systems reduce barriers to favouritism and discrimination:
  - Vital in recruitment, career advancement, and grant funding assessments, especially for female researchers.
  - Relevant in countries with widespread favouritism practices.

CONCLUDING REMARKS

- In the twenty-first century, advocating for peer-review-based research evaluation over scientometric methods seems outdated and counterproductive.
- It seems contradictory that the same organizations responsible for the assessments CoARA seeks to reform are entrusted with advancing research assessment.
- Rather than outright opposition, the current debate should center on preventing the use of metrics not in line with professional standards.

CONCLUDING REMARKS cont'd

- The community of evaluative scientometricians should question the widespread concern regarding the (mis)use, gaming, and drawbacks of current indicators, and identify the major pitfalls that have been overlooked or insufficiently addressed
- We should reflect on the apparent shortfall in the social impact of our research, as indicated by the CoARA initiative.
- We should then consider what steps can be taken to ensure that our recommendations for research policy and management are effectively implemented.

REFERENCE

Abramo, G., (2024). The forced battle between peer-review and scientometric research assessment: Why the CoARA initiative is unsound. *Research Evaluation*, forthcoming.

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giovanni.abramo@unimercatorum.it

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