Dr. Kostas Glinos
OpenAIRE seminar
30 March 2023

Challenges for 21st century science

and the need for assessment reform

Some challenges for science today

- Narrow perceptions of quality
- Reproducibility, replicability; fraud in some cases
- Hyper-publishing (and hyper-authorship)
- Closed access
- Fight for funding
- Obsession with rankings
- Risk-averse research
- Wasting (data) resources, repeating doomed research
- Loss of control of scientific production (publishing);
- Gaming the system
- Lack of equity and inclusion
- Focus on 'stars' – not on collaboration

Is this the culture we want?

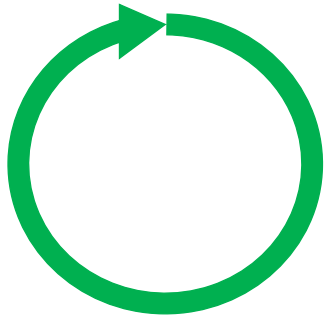
Slide adapted from a presentation by Danny Kingsley, Flinders University

Reproducibility: The ‘crisis’ (zoom in *health R&I)*

- Close to €390 billion/year for Health R&I (worldwide)
- A large share of the research investment may be wasted: potentially as much as 85%, according to Chalmers & Glasziou 2009, Lancet; Macleod 2014, Lancet

Unusable research reports
- Methods and codes unavailable; Inadequate information on medical interventions in trials; etc.

Scientific question not pertinent
- Not relevant to clinicians, carers and patients; Lack of awareness of already existing evidences; etc.



Biased reporting of results *- Selective reporting; Data reported not made comparable with other studies; Conflicts of interest; Fraud; etc.*

Poor study design, conduct and analysis *- Low statistical power; Not replicated enough; Not enough collaborative efforts; Poor training and mentoring of researchers; etc.*

Results not fully accessible
- “Disappointing” results less likely to be promptly published (if at all); Trials not registered; etc.

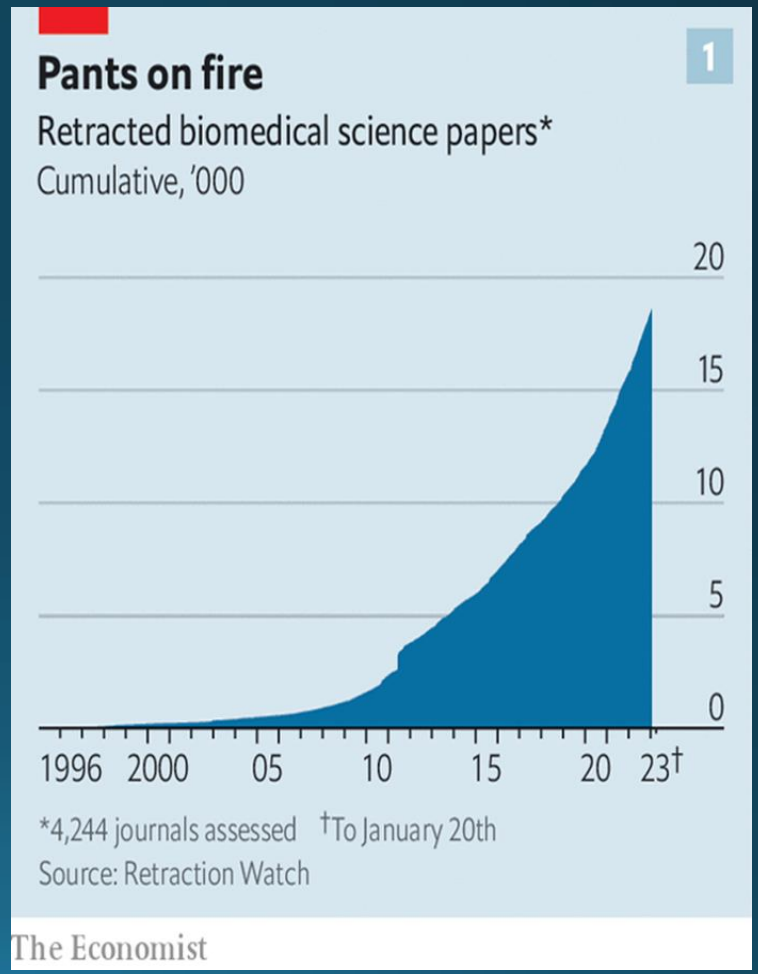
The Economist
22 February 2023

Menu Subscribe Log in

Science & technology | Scientific malpractice

There is a worrying amount of fraud in medical research

And a worrying unwillingness to do anything about it



The truth will out. Sometimes

2

Retracted biomedical science papers*

By reason, 1996-2023†, '000

*4,244 journals assessed †To January 20th

Source: Retraction Watch

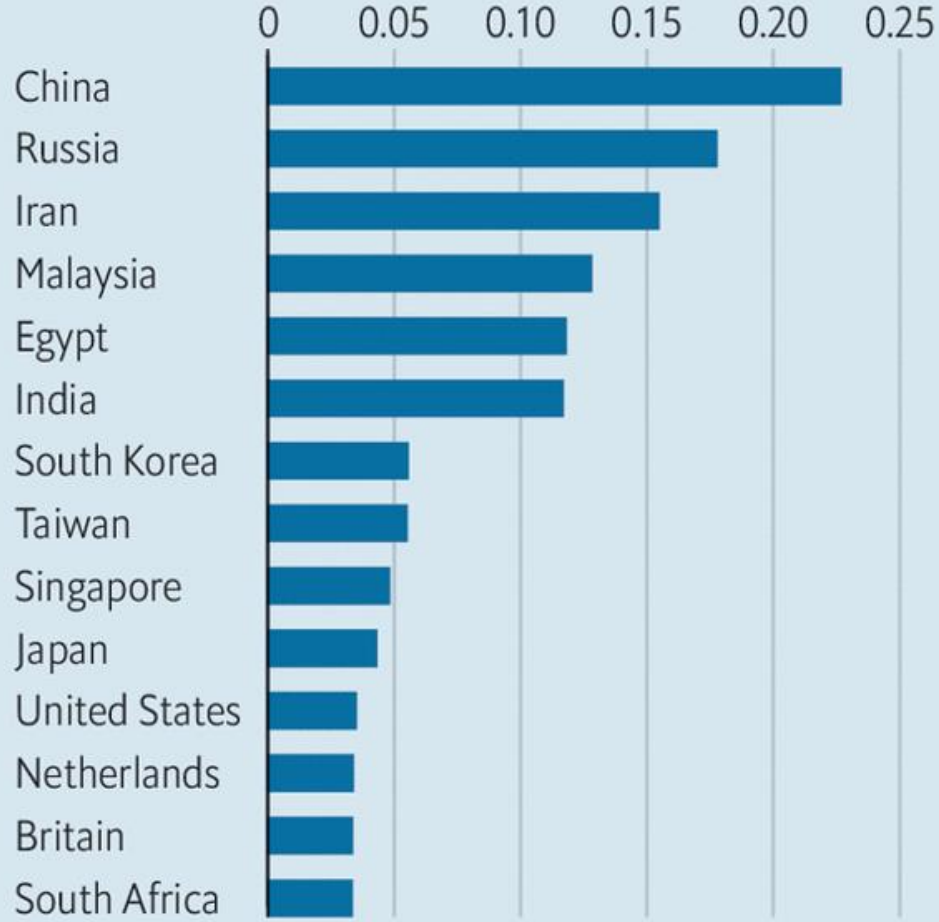
The Economist

Everyone's at it

3

Share of scientific papers retracted*

Selected countries, 1996-2023†, %



*7,160 journals assessed †To January 20th

Sources: Retraction Watch; SCImago

The Economist

Hyper-publishing

- Number of articles growing 8-9% annually (x2 every 8 years)
- >9,000 authors publish a paper every 5 days (period 2000-2016)
  John P. A. Ioannides et al, Nature, 12 September 2018
- Many papers are not cited (5-year citation rates)
  Sierra Williams, blogs.lse.ac.uk/impactofsocialsciences/2014/04/23/academic-papers-citation-rates-remler
  - 12% of medicine articles
  - 27% for natural sciences
  - 32% for social sciences
  - 82% (!) for the humanities
- 16,780 publishers in 2021 (x10 since 2000) publishing around 121,700 journals
- Number of papers with >100 authors growing [Nature, 23 February 2023]

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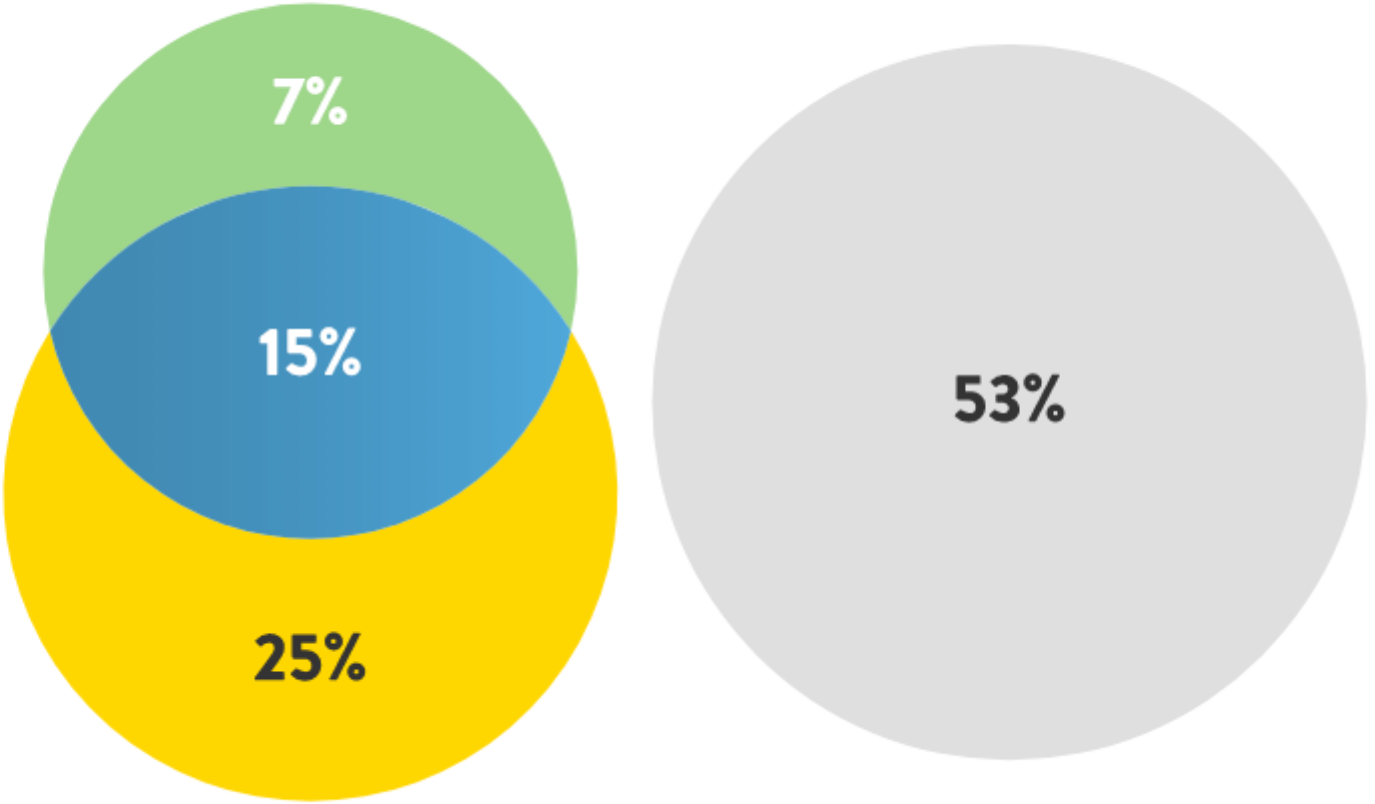
OUT OF 42 MILLION PUBLICATIONS* SINCE 2010

OTHER PLATFORM OPEN
9.5 million publications are available to read on other platforms.

PUBLISHER OPEN
16.5 million publications are available to read directly from the publisher's website.



CLOSED
22 million publications are paywalled on the publisher's website.

*Journal articles and conference papers

open.coki.ac/open/

GREECE

Greece or Hellas, officially the Hellenic Republic is a country in Southeast Europe. It is situated on the southern tip of the Balkans, and is located at the crossroads of Europe, Asia, and Africa. Derived from Wikipedia licensed CC-BY-SA.

WIKIPEDIA

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Southern Europe

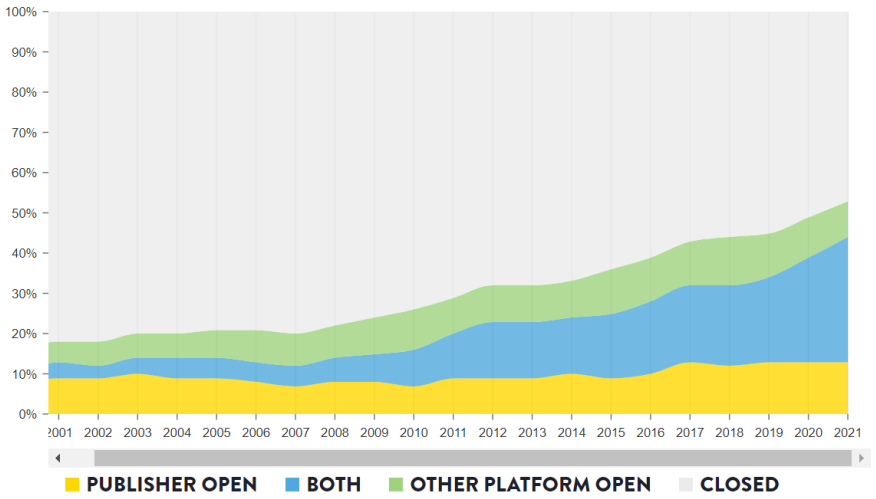
Europe

OPEN ACCESS PERCENTAGE	TOTAL PUBLICATIONS	TOTAL OPEN PUBLICATIONS	TOTAL CITATIONS
34%	237K	81K	5.3M

BREAKDOWN

PUBLISHER OPEN	BOTH	OTHER PLATFORM OPEN	CLOSED
10%	15%	9%	66%

PERCENTAGE OF OPEN ACCESS OVER TIME

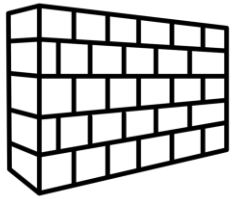


COUNTRY	OPEN ↓	BREAKDOWN (PUBLISHER OPEN / BOTH / OTHER PLATFORM OPEN / CLOSED)	TOTAL PUBLICATIONS	OPEN PUBLICATIONS
CZECH REPUBLIC	40%		211,341	83,830
BULGARIA	38%		53,510	20,462
LATVIA	35%		27,881	9,882
GIBRALTAR	34%		73	25
GREECE	34%		237,441	81,306
LIECHTENSTEIN	31%		592	183
MONACO	29%		233	68
BELARUS	29%		22,754	6,639
RUSSIA	27%		775,153	210,951
MOLDOVA	22%		3,836	826

Climate change, and the resulting harm to our global biodiversity, is one of the world's most pressing challenges

IF WE ARE GOING TO SOLVE THE WORLD'S GREATEST CHALLENGES, **THE KNOWLEDGE ABOUT THEM MUST BE OPEN**

HOWEVER,

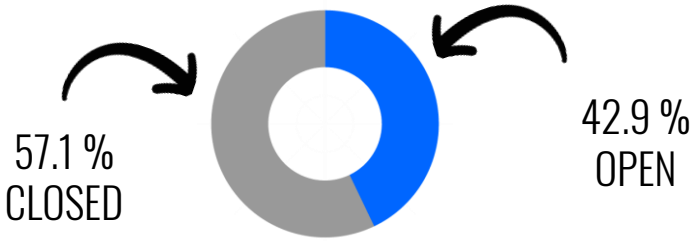


Open sharing of research outputs is not the default

Only about **43%** of climate change publications are open.

From 1980 to 2020

169,135 outputs



Source: COKI Climate Dash Demo

OPEN CLIMATE CAMPAIGN IS WORKING TO MAKE THE **OPEN SHARING** OF RESEARCH OUTPUTS THE NORM IN CLIMATE SCIENCE

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US universities

This article is more than 5 months old

Columbia whistleblower on exposing college rankings: 'They are worthless'

US News relegated Columbia to 18th from second place after it was revealed the college had misrepresented key statistics

Chris McGreal *in New York*

Fri 16 Sep 2022 09.00 BST

A Columbia University commencement ceremony in Manhattan, New York City. Photograph: Andrew Kelly/Reuters

The Columbia University academic whose exposure of false data caused the prestigious institution to plunge in US college rankings has accused its administration of deception and a whitewash over the affair.

Michael Thaddeus, a mathematics professor, said that by submitting rigged

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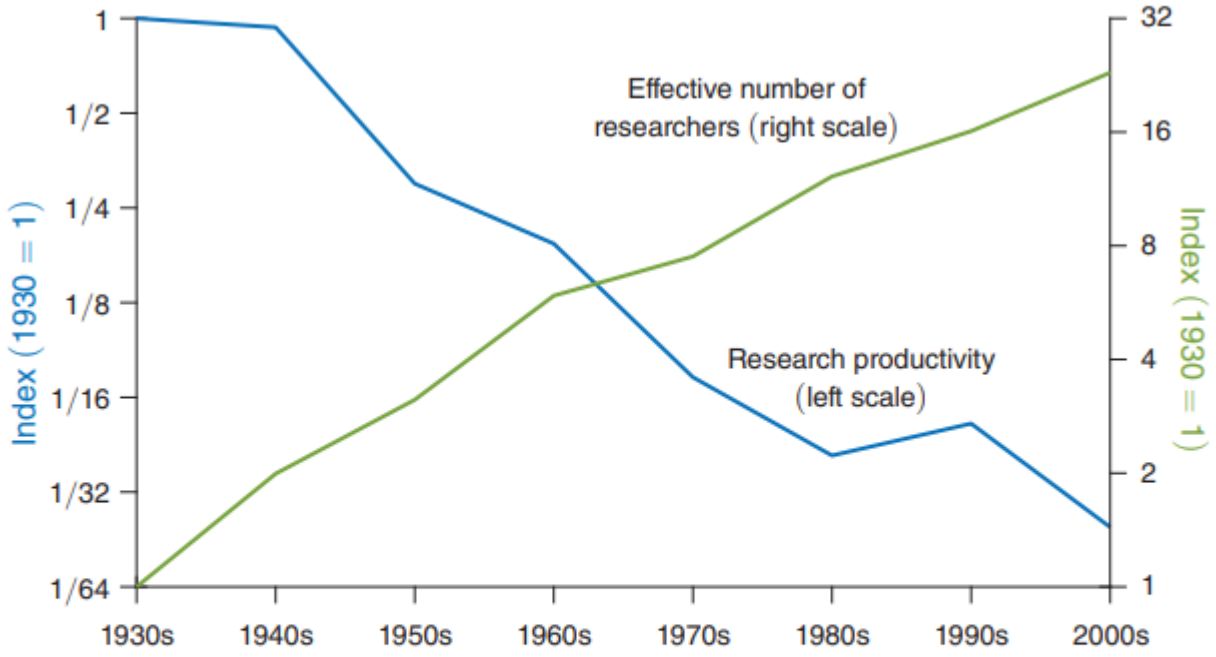
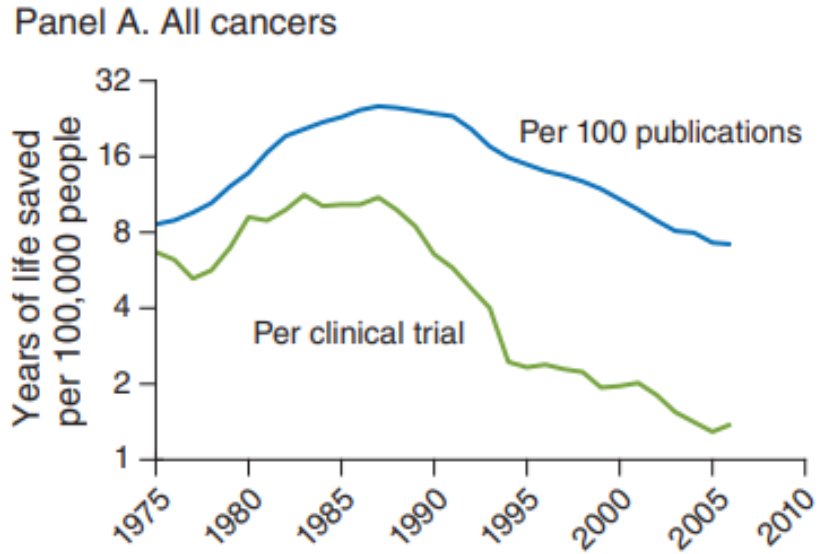
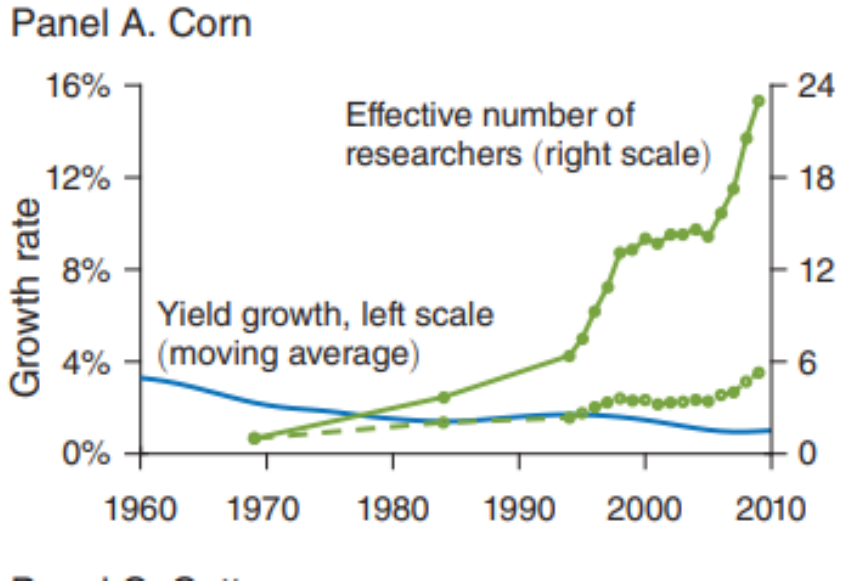


FIGURE 2. AGGREGATE EVIDENCE ON RESEARCH PRODUCTIVITY

Notes: Research productivity is the ratio of idea output, measured as TFP growth, to the effective number of researchers. See Notes to Figure 1 and the online Appendix. Both research productivity and research effort are normalized to the value of 1 in the 1930s.

Nicholas Bloom et al, Are Ideas Getting Harder to Find?
American Economic Review 2020, 110(4): 1104–1144





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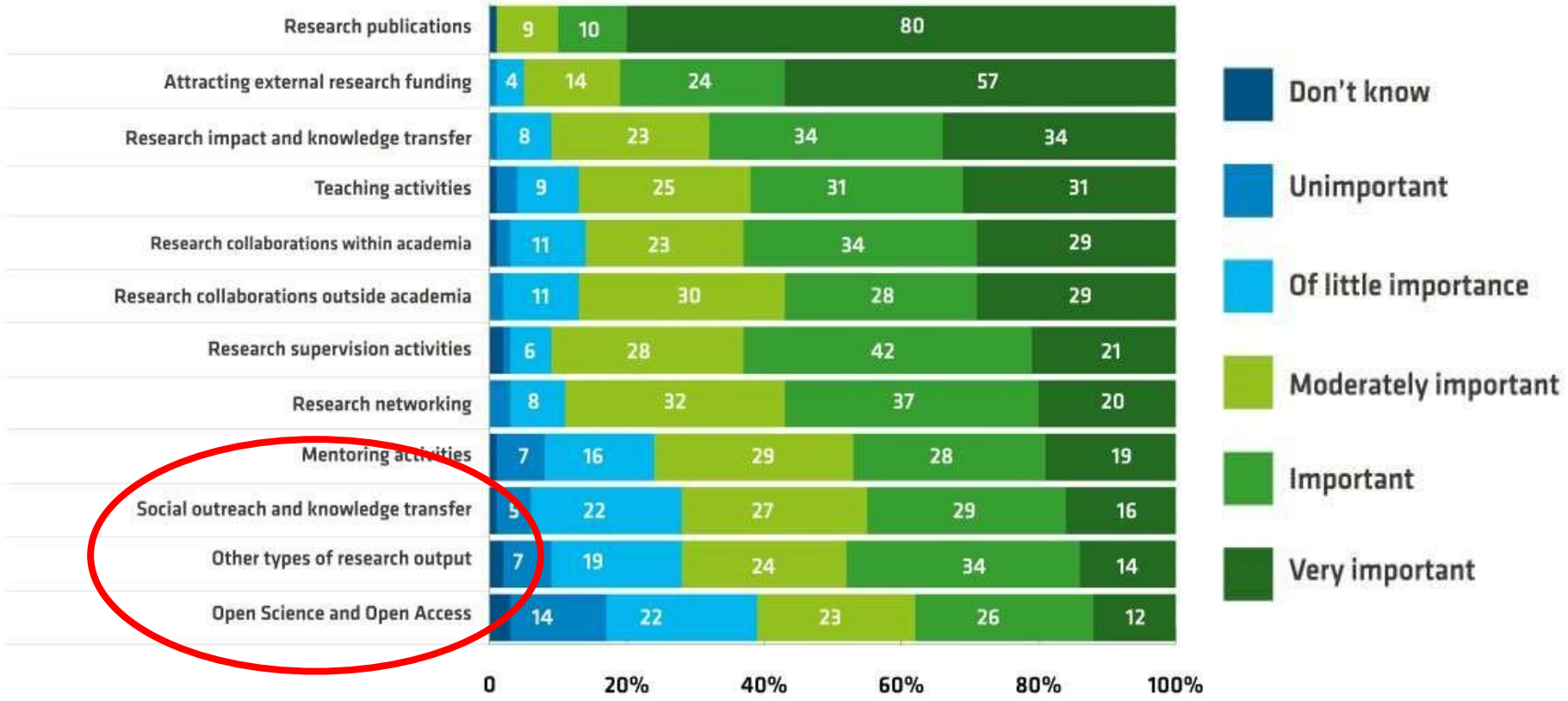
The root problems – and their solutions (1/2)

- Culture
  - Publish or perish: papers vs. quality and impact of contributions
  - Process vs. outputs
  - Integrity
  - Assuming responsibility
- Rewards and incentives system
- Publishing models
- Enabling infrastructure

Current rewards system

Which types of academic work matter most for research careers?



Source: EUA, 2019 Open Science survey of Universities

European Commission

International context

DORA

About Meetings Community Engagement Grants Contact

The Declaration Signers Project TARA News and Resources Sign DORA

22,081 individuals and organizations in 159 countries have signed DORA to date.

LEIDEN MANIFESTO FOR RESEARCH METRICS

Home Video version Translations Blog

10 principles to guide research evaluation with 25 translations, a video and a blog

PLOS BIOLOGY

OPEN ACCESS

ESSAY

The Hong Kong Principles for assessing researchers: Fostering research integrity

David Moher, Lex Bouter, Sabine Kleinert, Paul Glasziou, Mai Har Sham, Virginia Barbour, Anne-Marie Coriat, Nicole Foeger, Ulrich Dirnagl

Published: July 16, 2020 • https://doi.org/10.1371/journal.pbio.3000737

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Abstract Introduction Principles

Abstract

For knowledge to benefit research and society, it must be trustworthy. Trustworthy research is robust, rigorous, and transparent at all stages of design, execution, and reporting. Assessment

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ELSEVIER

Research Policy

Volume 46, Issue 4, May 2017, Pages 868-879

Work organization and mental health problems in PhD students

Katia Levecque [a, b], Frederik Anseel [a, b, c], Alain De Beuckelaer [d, e, a], Johan Van der Heyden [f, g], Lydia Gisle [f]

RESEARCH ARTICLE

Perceived publication pressure in Amsterdam: Survey of all disciplinary fields and academic ranks

Tamarinde L. Haven[1]*, Lex M. Bouter[1,2], Yvo M. Smulders[3], Joeri K. Tijdink[1,4]

1 Department of Philosophy, Vrije Universiteit, Amsterdam, North Holland, The Netherlands, **2** Department of Epidemiology and Biostatistics, Amsterdam UMC, location VUmc, Amsterdam, North Holland, The Netherlands, **3** Department of Internal Medicine, Amsterdam UMC, location VUmc, Amsterdam, North Holland, The Netherlands, **4** Department of Medical Humanities, Amsterdam UMC, location VUmc, Amsterdam, North Holland, The Netherlands

* t.l.haven@vu.nl

Check for updates

OPEN ACCESS

Citation: Haven TL, Bouter LM, Smulders YM, Tijdink JK (2019) Perceived publication pressure in

Abstract

Publications determine to a large extent the possibility to stay in academia ("publish or perish"). While some pressure to publish may incentivise high quality research, too much publication pressure is likely to have detrimental effects on both the scientific enterprise and on individual researchers. Our research question was: What is the level of perceived publication pressure in the four academic institutions in Amsterdam and does the pressure to pub-

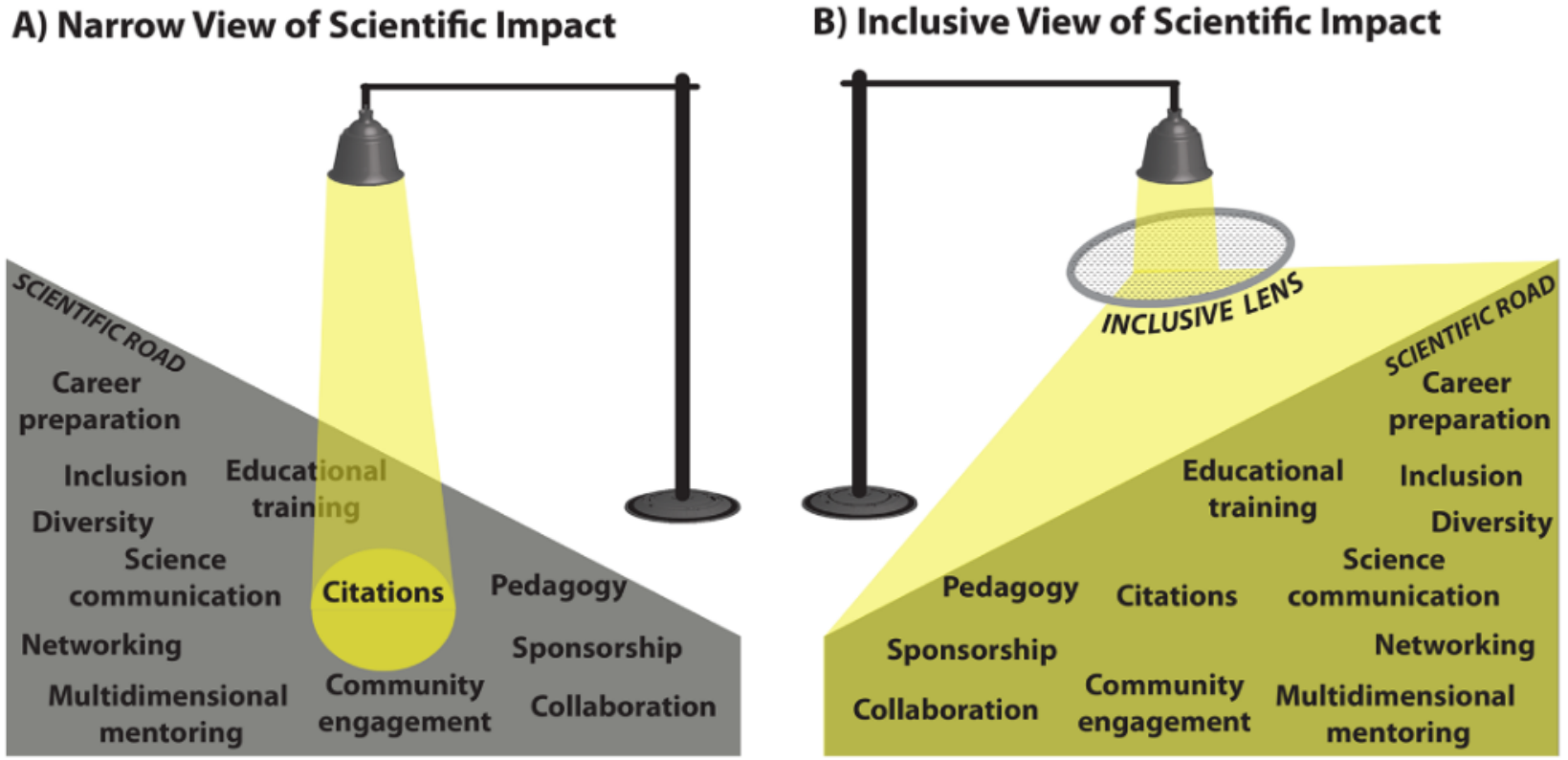
International context

Promoting inclusive metrics of success and impact to dismantle a discriminatory reward system in science

Fig 1

Science is suffering from observational bias in our value system.

This bias is analogous to the streetlight effect where (A) citations are valued because that is where we look, despite the fact that they perpetuate gender and racial biases as metrics of success. We advocate for (B), an expanded view of success and impact that is multifaceted and includes critical areas of mentorship, inclusion, and diversity.



doi: https://doi.org/10.1371/journal.pbio.3001282.g001

Network.

ESSAY

Promoting inclusive metrics of success and impact to dismantle a discriminatory reward system in science

Sarah W. Davies[1☯]*, Hollie M. Putnam[2☯]*, Tracy Ainsworth[3], Julia K. Baum[4], Colleen B. Bove[1], Sarah C. Crosby[5], Isabelle M. Côté[6], Anne Duplouy[7], Robinson W. Fulweiler[8], Alyssa J. Griffin[9], Torrance C. Hanley[10], Tessa Hill[11], Adriana Humanes[12], Sangeeta Mangubhai[13], Anna Metaxas[14], Laura M. Parker[3], Hanny E. Rivera[1], Nyssa J. Silbiger[15], Nicola S. Smith[16], Ana K. Spalding[17,18], Nikki Traylor-Knowles[19], Brooke L. Weigel[20], Rachel M. Wright[21], Amanda E. Bates[22]*

1 Department of Biology, Boston University, Boston, Massachusetts, United States of America, **2** Department of Biological Sciences, University of Rhode Island, Rhode Island, United States of America, **3** School of Biological Earth and Environmental Sciences, University of New South Wales, Sydney, Australia, **4** Department of Biology, University of Victoria, Victoria, British Columbia, Canada, **5** Harbor Watch, Earthplace, Inc., Westport, Connecticut, United States of America, **6** Department of Biological Sciences, Simon Fraser University, Burnaby, British Columbia, Canada, **7** The University of Helsinki, Organismal and Evolutionary Biology Research Program, Helsinki, Finland, **8** Department of Earth and Environment & Department of Biology, Boston University, Boston, Massachusetts, United States of America, **9** Department of Earth & Planetary Sciences & Bodega Marine Laboratory, University of California, Davis, California, United States of America, **10** Marine Science Center, Northeastern University, Nahant, Massachusetts, United States of America, **11** Department of Earth & Planetary Sciences & Bodega Marine Laboratory, University of California, Davis, California, United States of America, **12** School of Natural and Environmental Sciences, Newcastle University, Newcastle upon Tyne, United Kingdom, **13** Wildlife Conservation Society, Fiji Country Program, Suva, Fiji, **14** Department of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada, **15** Department of Biology, California State University, Northridge, Northridge, California, United States of America, **16** Department of Biological Sciences, Simon Fraser University, Burnaby, British Columbia, Canada, **17** School of Public Policy, College of Liberal Arts, Oregon State University, Corvallis, Oregon, United States of America, **18** Smithsonian Tropical Research Institute, Panama City, Panama, **19** University of Miami, Rosenstiel School of Marine and Atmospheric Sciences, Miami, Florida, United States of America, **20** Committee on Evolutionary Biology, University of Chicago, Chicago, Illinois, United States of America, **21** Department of Biological Sciences, Smith College, Northampton, Massachusetts, United States of America, **22** Department of Ocean Sciences, Memorial University of Newfoundland, St. John's, Newfoundland, Canada

☯ These authors contributed equally to this work.
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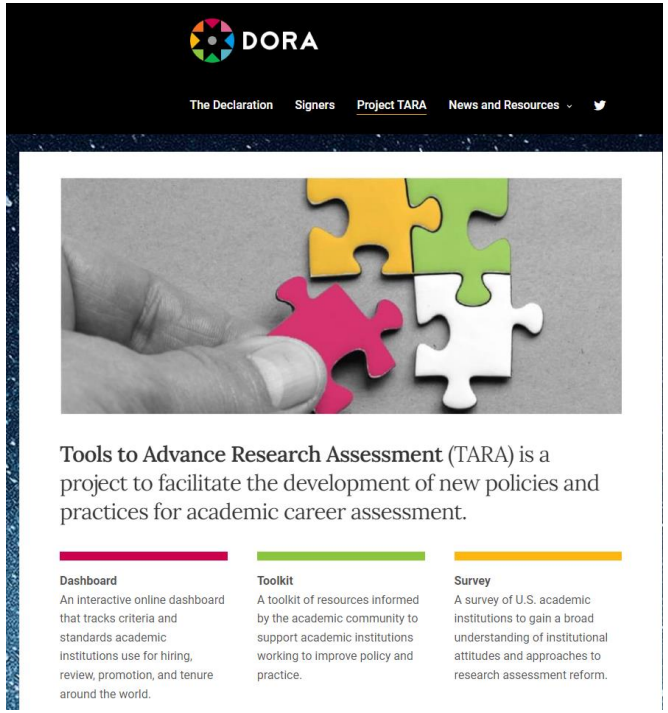
Abstract

Success and impact metrics in science are based on a system that perpetuates sexist and racist "rewards" by prioritizing citations and impact factors. These metrics are flawed and biased against already marginalized groups and fail to accurately capture the breadth of individuals' meaningful scientific impacts. We advocate shifting this outdated value system to advance science through principles of justice, equity, diversity, and inclusion. We outline pathways for a paradigm shift in scientific values based on multidimensional mentorship and promoting mentee well-being. These actions will require collective efforts supported by academic leaders and administrators to drive essential systemic change.

Change is happening



[Link Report]

[Link Repository]

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Towards a new *modus operandi* for Science

Current System (dominant)		Better system	
Excellence defined largely on the basis of *where* scientists publish		Composite definition of excellence	
Incentivises researchers to produce specific outputs (*mainly publications*) and to publish as much and as fast as possible (*publish or perish!)*	Use of quantitative metrics	Incentivises researchers to share knowledge/data early and openly, to collaborate, and to increase quality and impact; while considering diversity of outputs, local env't and research cultures	Use of qualitative and quantitative metrics
Rewarding individual competing scientists - gaining scientific prestige		Rewarding team work, collaboration and sharing to achieve societal impact (e.g. Covid-19)	

The European initiative

A stakeholder-owned initiative

Scoping report

Agreement on principles and way forward

November 2021

Agreement

Commits signatories to act on the basis on commonly agreed principles and commitments, within an agreed timeframe

July 2022

Coalition

Facilitates exchange of information and mutual learning

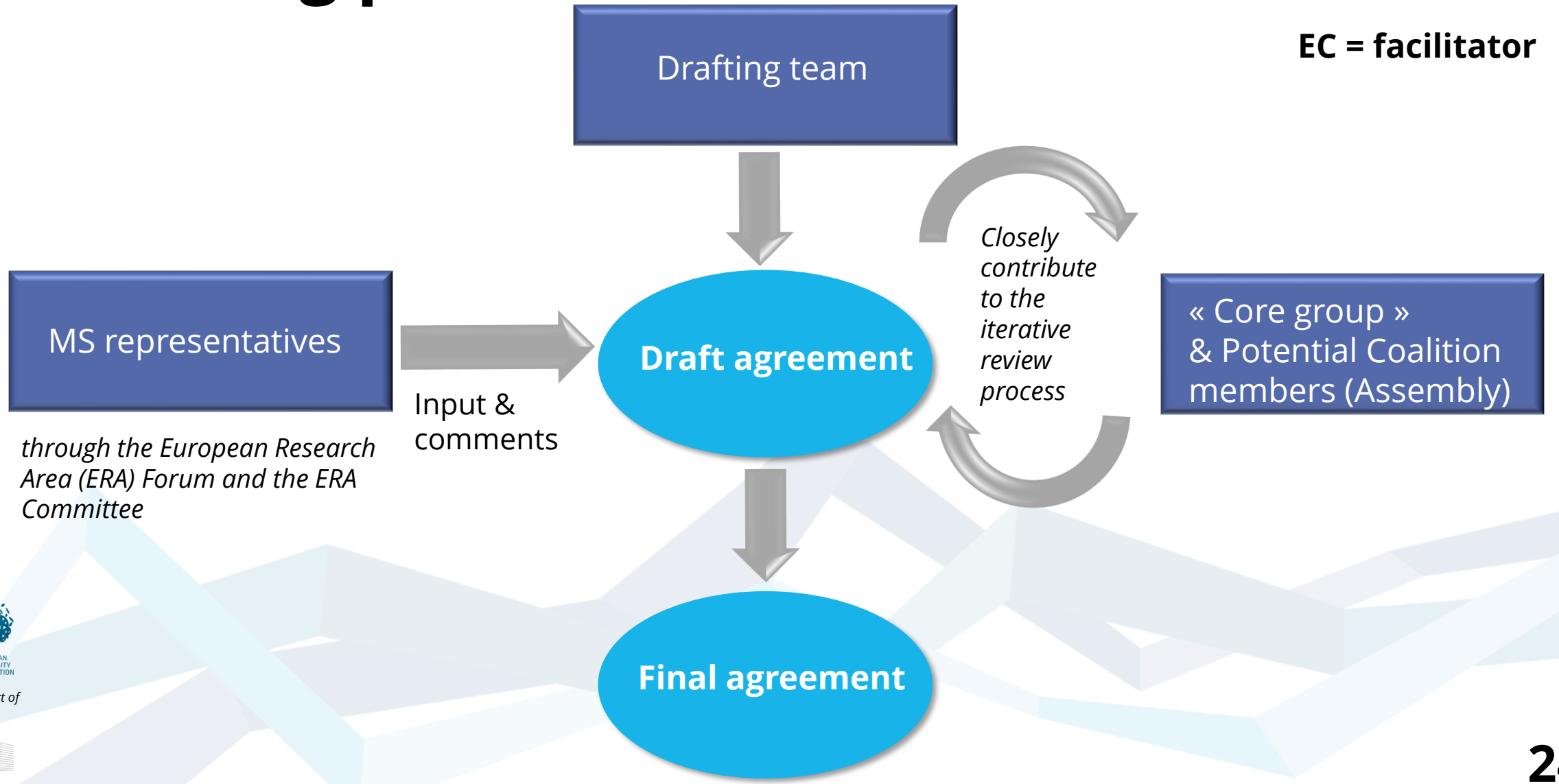
December 2022

Coalition of research funding organisations and research performing organisations (and their associations), national/regional assessment authorities and agencies, learned societies, and other organisations, all willing to take the lead in reforming research assessment

European Commission

Drafting process

EC = facilitator



through the European Research Area (ERA) Forum and the ERA Committee

SCIENCE EUROPE
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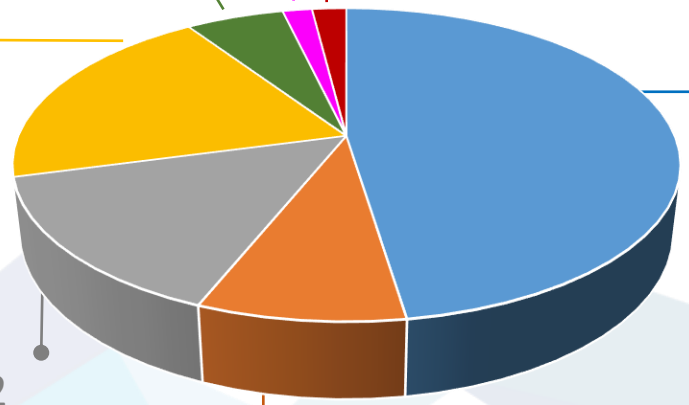
with the support of
European Commission

Co-creation with a diversity of organisations

Over 350 organisations invited to Assembly meetings, representing 40 countries (of which 25 EU countries), many international in scope



20 Academies and learned societies

6 Evaluation agencies

7 Ministries and regional authorities

Others 70

- Certification/standardization
- Research management and administration
- Professional development
- National reproducibility network
- Open Science advocacies
- Service providers
- Libraries
- …

Universities 168

- Universities 136
- Universities association 22
- European Universities alliances 10

Research centers 52

- Research centers 46
- Research infrastructures 4
- RPO associations 2

Funders 30

- Public funders 24
- Private funders 4
- Funders association 2

SCIENCE EUROPE Shaping the future of research

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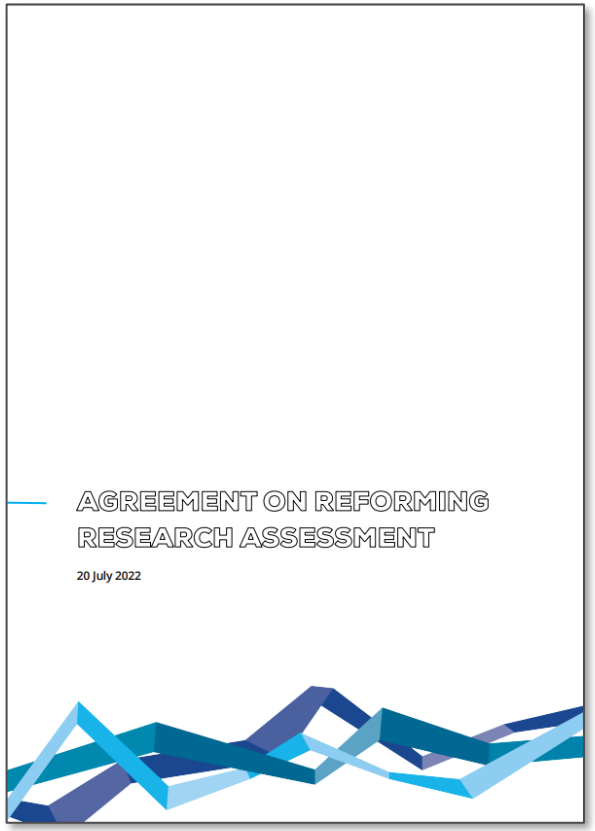
https://coara.eu/agreement/the-agreement-full-text/

The Agreement

The Agreement



Published on 20 July 2022

https://ec.europa.eu/info/files/agreement-reforming-research-assessment_en

- Preamble
- I 10 principles
- II 10 commitments
  - 4 core commitments
  - 6 supporting commitments
- III Principles on how to organise and operate the Coalition
- IV Timeframe

Signature box

- Annexes (non-prescriptive)
  - Rationale and Context
  - Reform journey
  - Toolbox

European Commission

Vision

Assessment of research, researchers, and research organisations supports the **quality** and **impact** of research,

by **recognising the diverse outputs, practices and activities** that maximise the quality of research and resulting impacts;

this requires basing assessments primarily on **qualitative judgement**, supported by **responsible use of quantitative indicators**.

Principles

EUROPEAN UNIVERSITY ASSOCIATION

PRINCIPLES FOR A REFORMED RESEARCH ASSESSMENT SYSTEM

An agreement between stakeholders may contain the **principles** listed below. All proposed principles are based on the consultations and discussions with stakeholders (see Annex 1), building on:

- the values and principles enshrined in the 2021 Council Recommendation on a Pact for Research and Innovation in Europe;
- the principles, values and respons… Universitatum, revised in 2020;
- the principles and good research practi… for Research Integrity" published in 20…
- the recommendations identified by … Assessment (DORA), the principles p… metrics, and the Hong Kong Principles …

A first set of higher-level principles corres… set of principles corresponds to assessmen…

Principles for overarching conditions

- Comply with **ethics and integrity rules and practices,** and e… integrity are the highest priority, never compromised by any cour… before or during assessment that the highest standards of ge… specific ethics and integrity are met. Value methodological rig… sources of bias, and promote extended forms of professional an… showing adherence to moral standards of conduct, and include… early sharing of research data and results, building on the … subjecting oneself to critical external validation.
- **Safeguard freedom of scientific research**. By putting i… frameworks that do not limit researchers in the questions they a… implementation, methods or theories. By limiting the assessmen… those necessary, as assessment must be useful for research… funders.
- Respect the **autonomy of research organisations**. By safeguarding the independence of research performing organisations in the evaluation of their researchers while implementing the present principles, yet striving to prevent contradictions between the assessment of research, researchers and institutions, and between institutions, to avoid fragmentation of the research and innovation landscape and to enable the mobility of researchers.
- Ensure **independence and transparency of the data, infrastructure and criteria** necessary for research assessment and for determining research impacts; in particular by clear and transparent data collection, algorithms and indicators, by ensuring control and ownership by the research community over critical infrastructures and tools, and by allowing those assessed to have access to the data, analyses and criteria used.

Principles for assessment criteria and processes

Quality and impact

- **Focus research assessment criteria on quality**. Reward the originality of ideas, the professional research conduct, and results beyond the state-of-the-art. Reward a variety of research missions, ranging from basic and frontier research to applied research. Quality implies that research is carried out through transparent research processes and methodologies and through research management allowing systematic re-use of previous results. Openness of research, and results that are verifiable and reproducible where applicable, strongly contribute to quality. Openness corresponds to early knowledge and data sharing, as well as open collaboration including societal engagement where appropriate. Assessment should rely on qualitative judgement for which peer-review is central, supported by responsibly used quantitative indicators where appropriate.
- Recognise the **contributions that advance knowledge and the (potential) impact of research results**. Impact of research results implies effects of a scientific, technological, economic and/… or long-term, and that vary … frontier research vs. applied …

Diversity, inclusiveness and coll…

- Recognise the **diversity of … outputs, and reward earl…** peer review, training, mento… and as appropriate sci…

Diversity, inclusiveness and collaboration

- Recognise the **diversity of research activities and practices, with a diversity of outputs, and reward early sharing and open collaboration**. Consider tasks like peer review, training, mentoring and supervision of Ph.D candidates, leadership roles, and, as appropriate, science communication and interaction with society, entrepreneurship, knowledge valorisation, and industry-academia cooperation. Consider also the full range of research outputs, such as scientific publications, data, software, models, methods, theories, algorithms, protocols, workflows, exhibitions, strategies, policy contributions, etc., and reward research behaviour underpinning **open science practices** such as early knowledge and data sharing as well as open collaboration within science and collaboration with societal actors where appropriate. Recognise that researchers should not excel in all types of tasks and provide for a framework that allows researchers to contribute to the definition of their research goals and aspirations.
- Use assessment criteria and processes that respect the **variety of scientific disciplines, research types** (e.g. basic and frontier research vs. applied research), **as well as research career stages** (e.g. early career researchers vs. senior researchers), and that acknowledge multi-, inter-, and trans-disciplinary as well as inter-sectoral approaches when applicable. Research assessment should be conducted commensurately to the specific nature of scientific disciplines, research missions or other scientific endeavours.
- Acknowledge and valorise the **diversity in research roles and careers**, including roles outside academia. Value the skills (including open science skills), competences and merits of individual researchers, but also recognise **team science and collaboration**.
- Ensure **gender equality, equal opportunities and inclusiveness.** Consider gender balance, the gender dimension, and take into account diversity in the broader sense (e.g. racial or ethnic origin, sexual orientation, socio-economic, disability) in research teams at all levels, and in the content of research and innovation.

Towards a reform of the research assessment system - Scoping report

Core commitments

1. Recognise the diversity of contributions to, and careers in, research in accordance with the needs and nature of the research
2. Base research assessment primarily on qualitative evaluation for which peer review is central, supported by responsible use of quantitative indicators
3. Abandon inappropriate uses in research assessment of journal- and publication-based metrics, in particular inappropriate uses of Journal Impact Factor (JIF) and h-index
4. Avoid the use of rankings of research organisations in research assessment

Supporting commitments (1)

5. Commit resources to reforming research assessment as is needed to achieve the organisational changes committed to
6. Review and develop research assessment criteria, tools and processes

6.1 Criteria for units and institutions

With the direct involvement of research organisations and researchers at all career stages, review and develop criteria for assessing research units and research performing organisations, while promoting interoperability

6.2 Criteria for projects and researchers

With the direct involvement of researchers at all career stages, review and develop criteria, tools and processes for the assessment of research projects, research teams and researchers that are adapted to their context of application

Supporting commitments (2)

7. Raise awareness of research assessment reform and provide transparent communication, guidance, and training on assessment criteria and processes as well as their use
8. Exchange practices and experiences to enable mutual learning within and beyond the Coalition
9. Communicate progress made on adherence to the Principles and implementation of the Commitments
10. Evaluate practices, criteria and tools based on solid evidence and the state-of-the-art in research on research, and make data openly available for evidence gathering and research

Timeframe

Year 0 (2022)

Signature

Year 1 (2023)

Start the process of reviewing or developing criteria, tools and processes

Year 5 (2027)

At least one cycle of review and development of own assessment criteria, tools and processes

NB: Organisations can sign the Agreement at any point in time beyond 2022. The timeline for organisations signing after 2022 will be adjusted accordingly.

EDITORIAL | 27 July 2022

Support Europe's bold vision for responsible research assessment

There have been many initiatives to combat the distorting effect of research assessment exercises. The latest looks like it might work

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Related Articles

Stop misusing data when hiring academics

University rankings need a rethink

The Coalition

COALITION BODIES

- **General Assembly of Members** - All Members. The organ representing all the members of the Coalition. The highest-level decision-making body, that meets at least once a year (at least three times during the first year)
- **Working Groups** – Voluntary participation. To exchange knowledge, learn mutually, discuss and investigate any topic to advance research assessment and help with the implementation of the Members commitments
- **Steering Board** – Elected. A collegial body, responsible for the overall oversight, strategy, business plan and sustainability of the Coalition. Taking decisions by mutual agreement
- **Coalition Secretariat** - Supports the administrative, managerial, logistical, communication, engagement, networking, outreach, leadership and other activities of the Coalition

MEMBERSHIP

- Organisations that have signed the Agreement on Reforming Research Assessment, and that are:
  - Universities, and their associations;
  - Research centres, research infrastructures, and their associations;
  - Academies, learned societies, and their associations, and associations of researchers;
  - Public or private research funding organisations and their associations;
  - National/regional authorities or agencies that implement some form of research assessment and their associations; and
  - Other relevant not-for-profit organisations involved with research assessment, and their associations.
- Membership approved by the Steering Board
- Members may leave the Coalition at any time

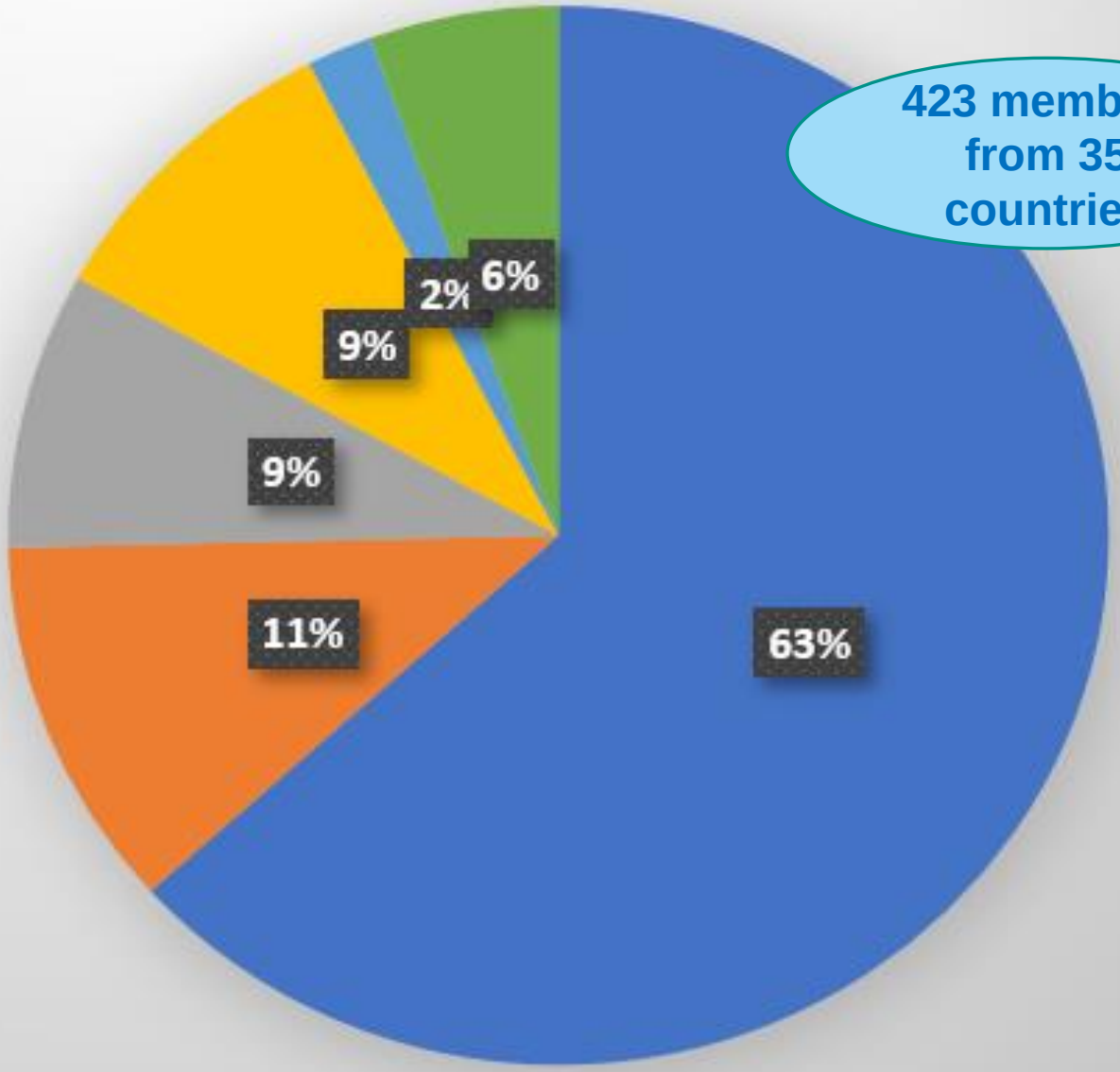
CoARA

WORK OF THE COALITION

- **Working Groups operating as 'communities of practice' and offering space for mutual learning and collaboration. Examples:**
  - **"Interest communities", on ad-hoc horizontal topics**
  - **"Discipline communities", on approaches to tailor criteria and processes by discipline, inter-disciplinary field, thematic area**
  - **"Institution communities", on topics specific to a given type of organisation**
  - **"National communities", on issues specific to different types of organisations of a given country or group of countries**
- **Other complementary means like workshops, webinars, (annual) conferences, seminars, trainings, etc.**

Distribution of CoARA membership per types of organisations

- Universities and their associations
- Research centres, research infrastructures, and their associations
- Academies, learned societies, and their associations, and associations of researchers
- Public or private research funding organisations and their associations
- National/regional authorities or agencies that implement some form of research assessment and their associations
- Other relevant non-for-profit organisations involved with research assessment, and their associations



423 members from 35 countries

The root problems – and their solutions (2/2)

- Culture
  - Papers vs. quality and impact of contributions
  - Process vs. outputs
  - Integrity
  - Assuming responsibility
- Rewards and incentives system
- Publishing models
- Enabling infrastructure

Scholarly communication: Some data

- 16,780 publishers in 2021 (x10 since 2000) publishing around 121,700 journals
  - 71% publish a single title
  - 10 publishers publish 47% of articles
- 28 B$ expected revenues in 2023
- 89% digital (2020), libraries budgets shrinking
- 50-70% of peer-reviewed papers behind paywalls
- 12% of industry revenues from APC OA but rising fast (~12% annually)

Sources:

deltathink.com/news-views-open-access-market-sizing-update-2020/

zenodo.org/record/4046624#.YoAnjHZByUk (SPARC Europe study)

www.nature.com/articles/d41586-022-00216-1

journals.plos.org/plosone/article?id=10.1371/journal.pone.0166387

www.nature.com/articles/533452a

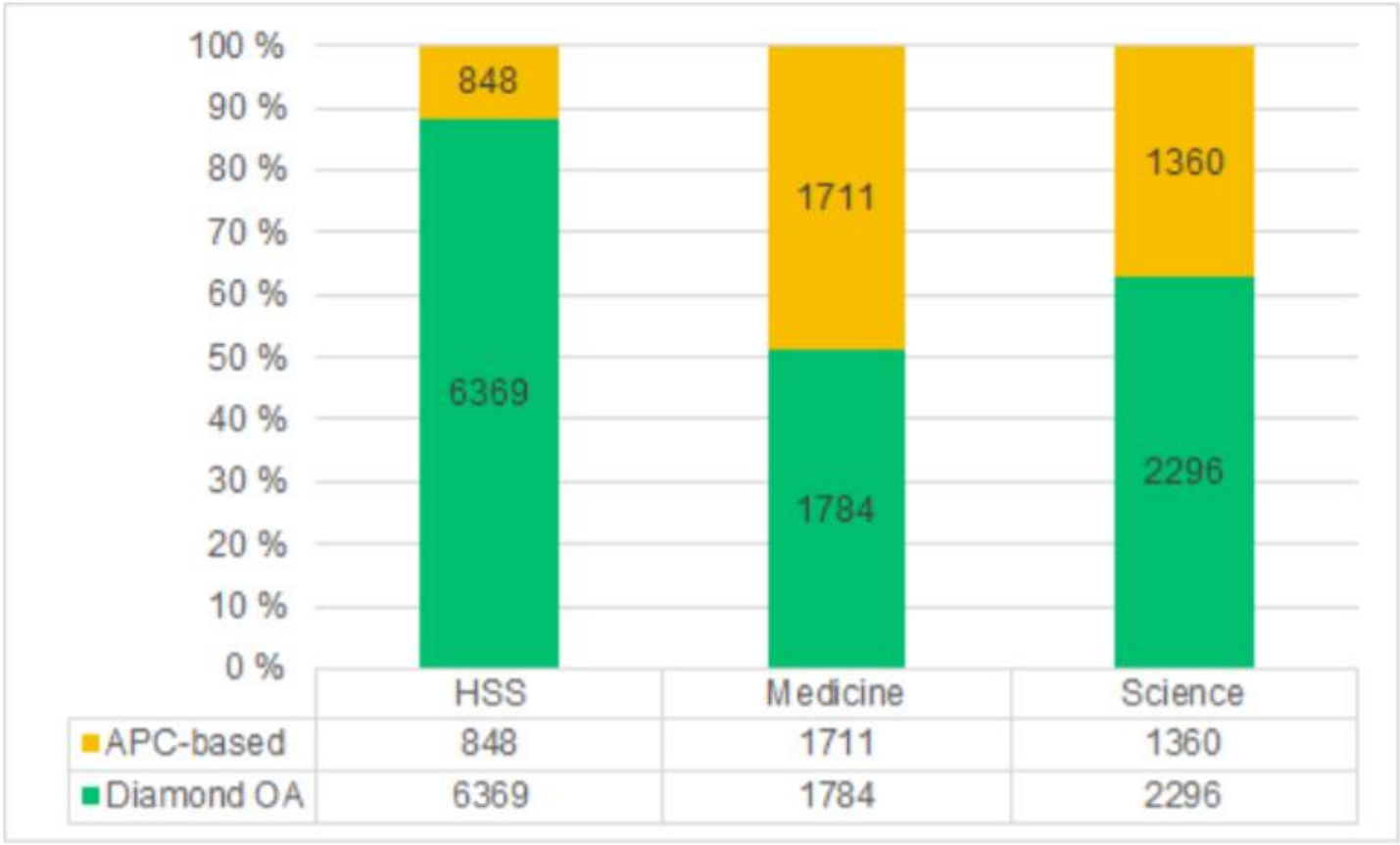
STM Global Brief 2021-Economics and Market size

Scholarly communication: the issues

- **Open Access**
  - Most publications behind paywalls
  - Loss of copyright (~50% subscription journals require transfer; ~60% OA journals allow authors to hold without restrictions)
- **Slow, wasteful system**
  - Cascading submissions and exploding review demand (10% growth rate, up from 4-5%; 20% of researchers contribute 69-94% of reviews of which 70% dedicate <1% of their time)
- **Lack of transparency**
  - Impact on quality, reproducibility and trust (>70% fail to reproduce others' experiments, 50% fail to reproduce their own!)
- **Publish or perish**
  - Tyranny of JIF
  - Lack of reproducibility and rigour
  - Innovation? Too risky!
- **Cost!**

Institutional/diamond publishing

- **Mission-based not-for-profit open access publishing activities, non-APC based**
  - By universities and other research institutions, funders or bodies of public interest
- **An ocean of publishing initiatives, large and small across the world**
  - All fields of science, all languages
  - HSS a pioneer
  - Various funding models
- **These publishing outlets, usually journals, form a sizeable portion of all available journals and 2/3 of the open access articles**
  - 10/14K journals in DOAJ i.e. 73% does not require APCs
  - But: they publish 356,000 articles per year vs 453,000 compared to the APC journals in DOAJ
  - Largely in the SSH
- **The publishing system and publishing practices can be further diversified, consolidated and improved**



	HSS	Medicine	Science
APC-based	848	1711	1360
Diamond OA	6369	1784	2296

Figure 14. Journals by funding models for the three disciplinary groups. Source: DOAJ and GOA(5)

Source: Bosman, Jeroen, Frantsvåg, Jan Erik, Kramer, Bianca, Langlais, Pierre-Carl, & Proudman, Vanessa. (2021). OA Diamond Journals Study. Part 1: Findings. Zenodo. https://doi.org/10.5281/zenodo.4558704

The contribution of Diamond OA to the communication of science

4. Diamond OA should regain its place in research assessment

- Data normalization
- Available data sources for comprehensive research assessment
- Quantitave indicators
- Qualitative views of its contribution to the communicaition of science

The contribution of Diamond OA to universities and countries in the dissemination of science must not be ignored when commercial solutions are being negotiated.

Map of co-authorship in diamond OA journals (1.9 million author records)
Source: Redalyc 2022

redalyc.org UAEM | AmeliCA

Examples of reports and services in EU

- '**Future of Scholarly Publishing and Scholarly Communication**', report of expert group (2019)
- Reports by **cOAlition S, Open Research Central**
- '**Action Plan for Diamond Open Access**' (2022), Commission-funded **DIAMAS project**
- https://journal.fi
- http://epublishing.ekt.gr
- https://operas-eu.org
- https://hrcak.srce.hr
- https://riviste.unimi.it/
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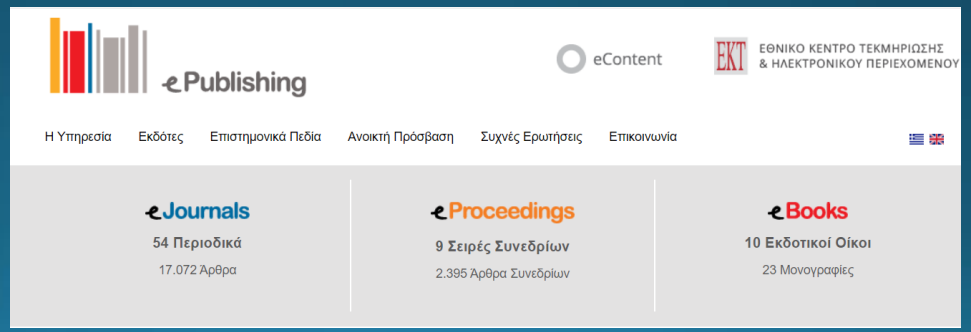
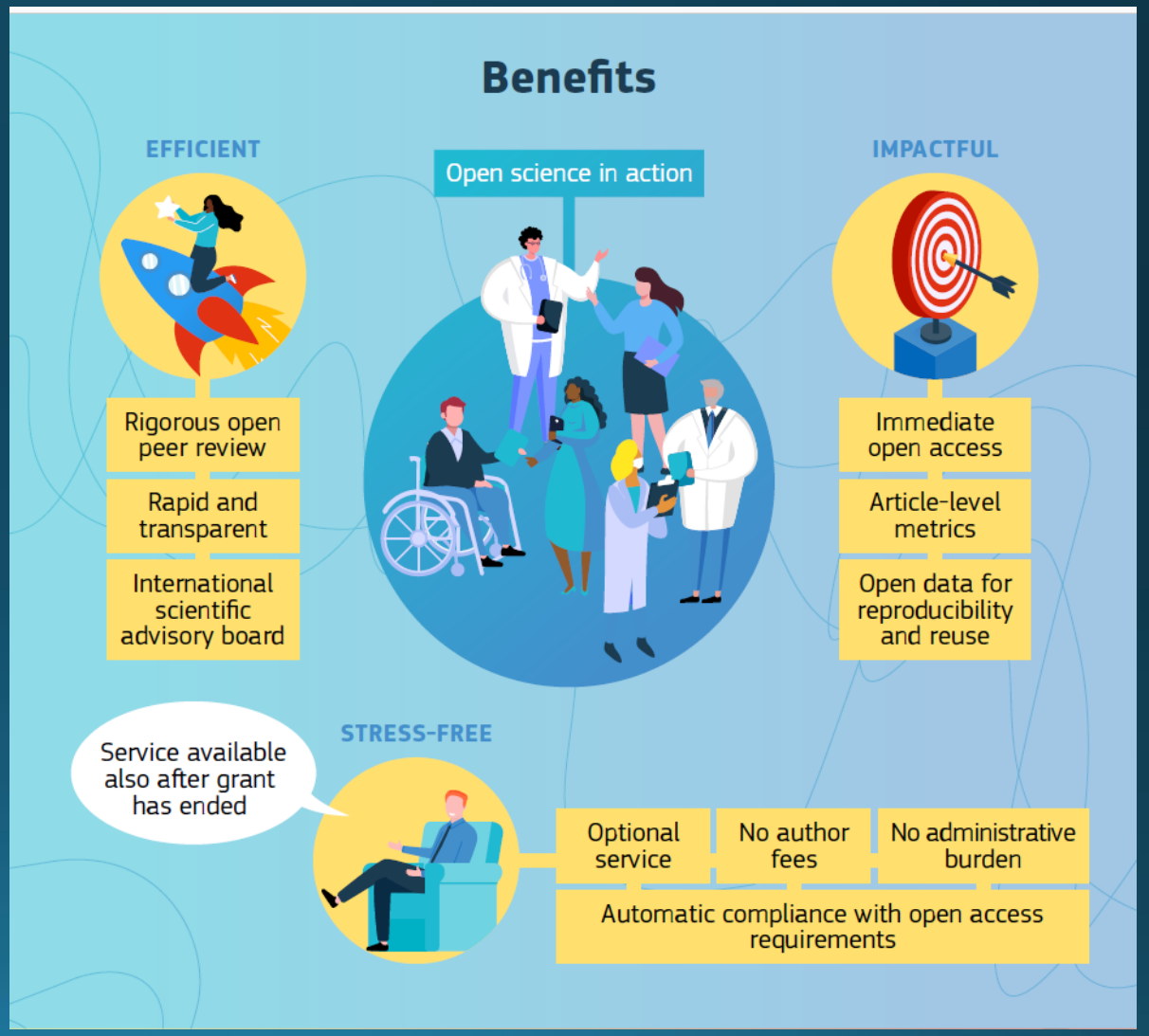
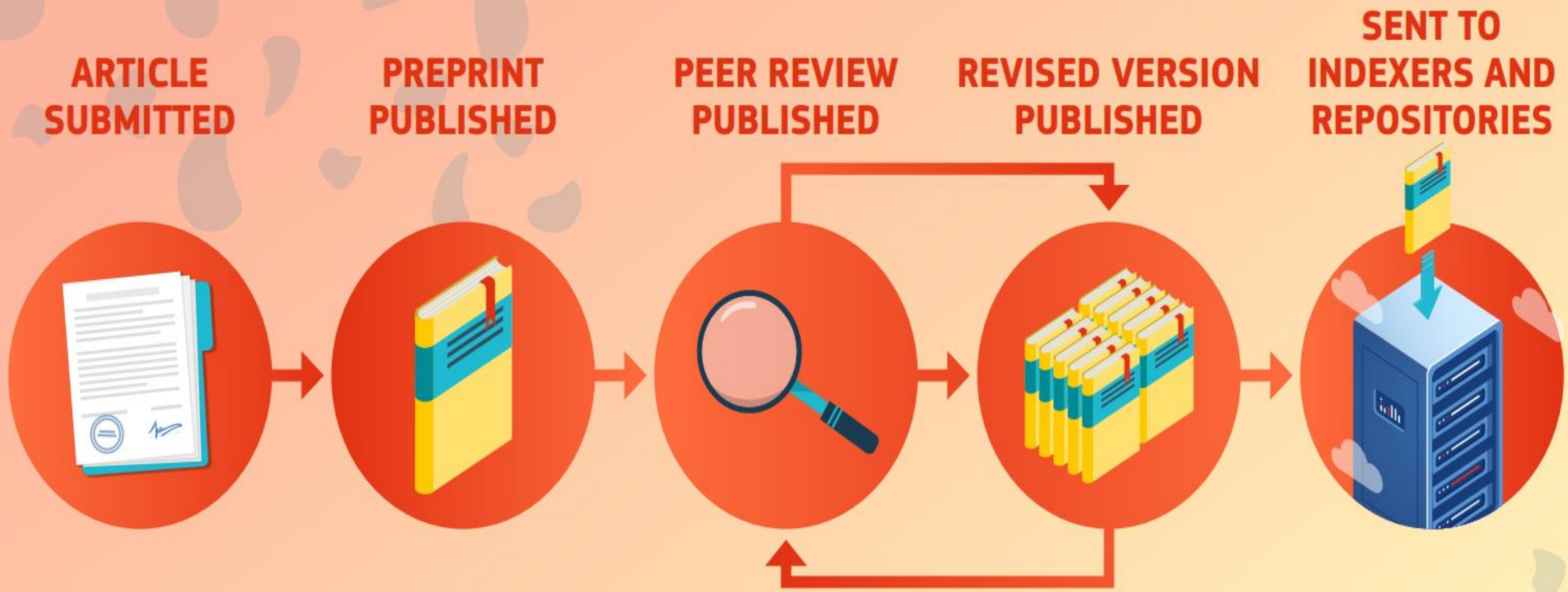


Open Research Europe

- A peer-reviewed publishing platform (not a repository)
- Optional service for Horizon Europe beneficiaries at no cost to them
- Post-publication peer-review model: publish first (=early+ open sharing) and review after in open review (transparency)
- Publication and review reports open access under CC BY licenses (transparency, open content)
- Launched end March 2021; > 300 publications
- Vision beyond 2024: A pan-European publishing service?



How does it work?



A vision for ORE beyond 2026

- A top-quality, trusted **pan-European OA publishing service**
- **Collectively driven, owned and supported** by European research funders and research institutions, as a service for **researchers**, with **no author-facing fees**
- Supported by an **open source infrastructure**
- **Ambition for a Diamond OA** publishing service

Main messages

- You get what you reward
- Enormous benefits in impact, efficiency, equity and trust if we *open up research* and we reform the ways research is published, assessed and supported

Thank you

Example of a minimalistic national Open Science policy

- A legislative reform will need to stipulate *inter alia*:
  1. All scholarly communications of research results will be open access, immediately upon publication
  2. Similarly for access to research data generated or collected in Botswana; if the data were to remain closed this should have been justified on security, privacy or commercial grounds
  3. All products of research (publications, data, software etc.) shall be findable, accessible, and re-usable, whether they are open or not; they will need to be deposited in a trusted national repository
  4. Institutions and researchers shall retain sufficient IPR to their research products so that they can implement the above

- Universities and other research institutions are encouraged to implement policies to ensure:
  1. They are responsible for their scientific production. This implies appropriate management of research data to ensure data are FAIR and – in cases of patrimonial data – preserved for the long term.
  2. Support their researchers in terms of the digital skills required to format, annotate, identify (PIDs) and generally manage the data and other digital products of research
  3. Researchers are evaluated and assessed for their hiring or promotion on the basis of the intrinsic quality and impact of their work and of their integrity, accomplishments and conduct, without taking into account indicators such as the Journal Impact Factor or H-index.
  4. Government will review implementation of these policies every three years.

- In case the Government carries out assessment of research projects or research institutions, this will be done consistently with article (c) above

- The [NREN] is tasked to:
  1.Ensure connectivity between [….]
  2.Provide services to research institutions for setting up their digital infrastructure including setting up / operating repositories
  3.……