

Introduction and Motivations: Open Science and Access to Research Data

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Consiglio Nazionale delle Ricerche



Corso di formazione
Praticare l'Open Science nelle scienze della Terra e dell'ambiente
25 Novembre 2020 | Modulo 1



Course outline

Nov
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Introduction and
motivations:
access to research
data

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26

Federated
approaches to data
and service
integration:
experiences from
EPOS research
infrastructure

Dec
1

Research Data
Management:
Open Data, FAIR
Data and Data
Management Plan

Dec
3

Demo session:
Open Science
Tools and Services

Practicalities

During the course, we will use different tools and services to

- Share
- Collaborate
- Interact



Virtual Research Environment

- We set up a Virtual Research Environment (VRE) for this course. By entering the VRE you will find:
 - A dedicated forum (social networking) where you can ask questions after the lessons, discuss, share experiences. Trainers will use the forum to share important information about the course.
 - A dedicated workspace where trainers will share course material and other useful documentation
- To join the VRE, you can use your institutional, google or LinkedIn account:

<https://eosc-pillar.d4science.org/group/eosc-pillar-gateway/explore?siteId=273133421>



Interactive Zoom buttons



Chat



Raise Hand



Q&A

CHAT

Use the Chat for technical/ practical messages. Useful links will be shared here during the lessons

RAISE HAND

If you wish to speak during the discussion sections, please raise your hand

Q&A

Please use the Q&A button to pose questions anytime during the course. Questions will be answered in the discussion sessions, after the presentations.

Mentimeter

- Mentimeter allows for a quick **interaction** with the audience.
- You will be able to **post anonymous comments**
- You will be asked to **answer questions anonymously**
- Results of the interactions will be **available live**
- You can **access** mentimeter from any device (mobile pc, tablet...)
 - Go to www.menti.com and enter code: **17 62 71**
 - Click on the direct link: <https://www.menti.com/663okc6efu>
 - Scan the QR code





Let's start!

How I imagined my life as a researcher



EOSC-Pillar
Coordination and Harmonisation of National & Thematic Initiatives to support EOSC

OpenAIRE



ICDI

Pic credits: ThisIsEngineering, Tobias Bjørkli, Martin Lopez, Anna Shvets, Yuting Gao, Tom Fisk, panumas nikhomkhai, Devon Rockola, Spencer Davis on Pexels

Adapted from of Federica Tanlongo, et al. ESOF2020, <https://zenodo.org/record/4031170#.X2zCnhMzbPa>

Reality: what do I need to do to advance my career?



I need to **publish** in high Impact Journals!

I need to **be cited!**



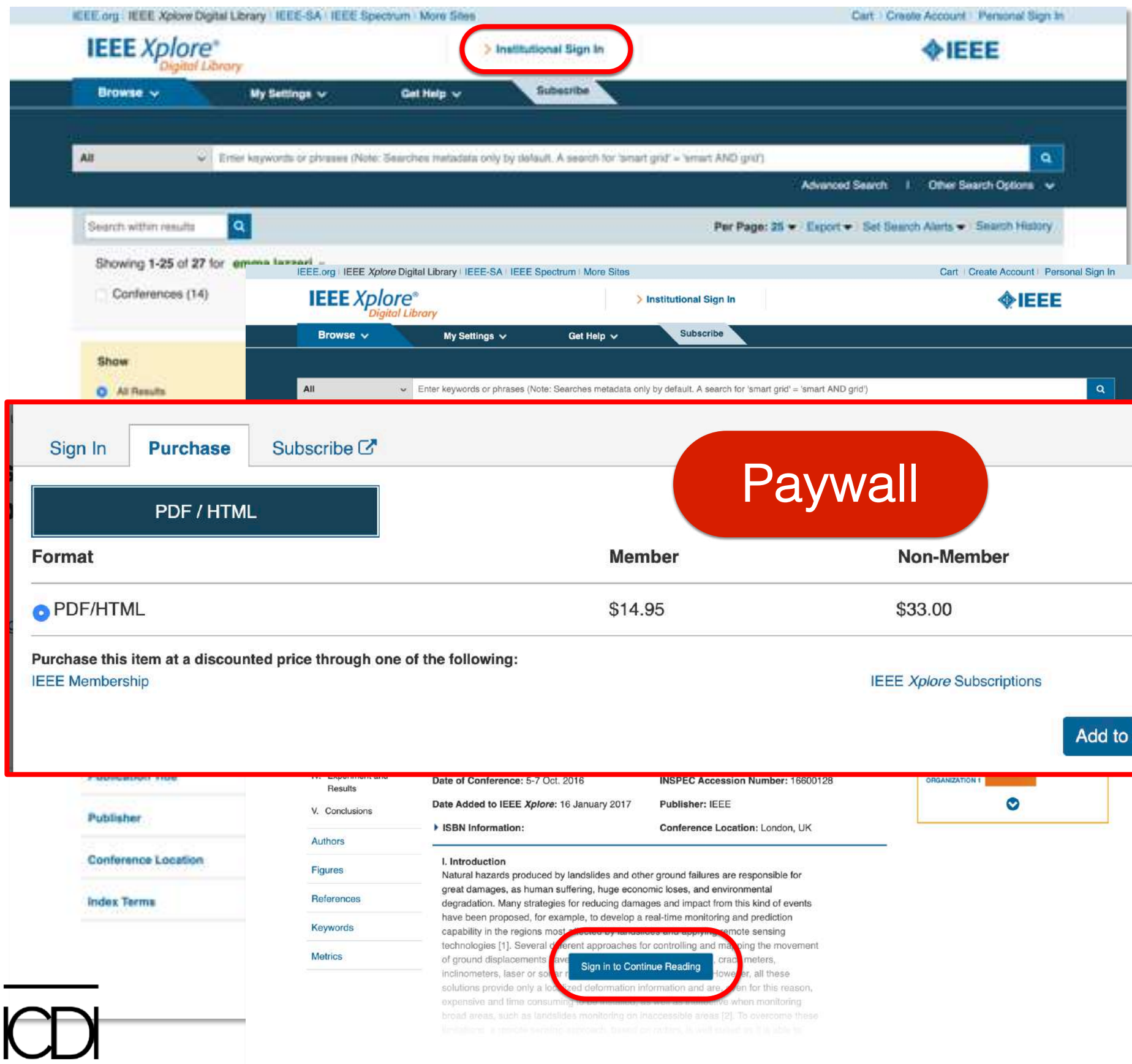


Access to
Scientific Literature

Did you know?

Reading your own article outside the Institutional network is not free.

If you try to access from your home, you will hit a **paywall**



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All | Enter keywords or phrases (Note: Searches metadata only by default. A search for 'smart grid' = 'smart AND grid')

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Search within results

Per Page: 25 | Export | Set Search Alerts | Search History

Showing 1-25 of 27 for *green island*

Conferences (14)

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Date of Conference: 5-7 Oct. 2016 | INSPEC Accession Number: 16600128

Date Added to IEEE Xplore: 16 January 2017 | Publisher: IEEE

ISBN Information: | Conference Location: London, UK

I. Introduction

Natural hazards produced by landslides and other ground failures are responsible for great damages, as human suffering, huge economic losses, and environmental degradation. Many strategies for reducing damages and impact from this kind of events have been proposed, for example, to develop a real-time monitoring and prediction capability in the regions most affected by landslides and applying remote sensing technologies [1]. Several different approaches for controlling and mapping the movement of ground displacements have been proposed, such as ground-based sensors (e.g., crack meters, inclinometers, laser or solar radar), satellite-based sensors (e.g., Synthetic Aperture Radar), and ground-based sensors (e.g., GPS). However, all these solutions provide only a localized deformation information and are, often for this reason, expensive and time consuming to be installed, as well as intrusive when monitoring broad areas, such as landslides monitoring on inaccessible areas [2]. To overcome these limitations, a remote sensing approach, based on radars, is well suited as it is able to

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you can access and read the
contents

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ownership!
Your institution owns nothing!!!

You get access



Costs of scientific literature: business models

- **Traditional subscription based**

Research Institutions pay annual fees to give access to the Journal contents to their researchers (not to own the literature!)

- **Gold Open Access**

Articles published in Gold Open Access Journals are accessible to anyone starting from the very moment of the publication. Sometimes the author pays an APC (Article Processing Charge) to give access to the public to his/her publication

- **Hybrid Model**

The Journal is a traditional subscription based one, but the editor charges the authors an APC to open access their specific paper to the World.

1-3 Millions
euros

100-6000
euros

100-3000
euros



Double dipping

”

Schimmer, R., Geschuhn, K. K., & Vogler, A. (2015). Disrupting the subscription journals' business model for the necessary large-scale transformation to open access. doi:10.17617/1.3.

Estimation: **10 Billions Dollars**
used for journal subscriptions

That is the money Institutions pay to
re-buy the article their own
researchers write!

What is the problem?

- Big deals with editors are **not transparent**
- Research can be **accessed by few** with long **delays**
- Authors are giving away their **copyrights** thinking they have no choice
- **Subscription** costs are **rising** every year (by 1-2%)
- **APC** costs are **not tracked**
- **Authors, reviewers and editors are not paid** but are giving for free the raw material to scientific publishers who make great profit out of it:

the recording and the film industries in size, but it is far more profitable. In 2010, Elsevier's scientific publishing arm reported profits of £724m on just over £2bn in revenue. It was a 36% margin - higher than Apple, Google, or Amazon posted that year.

Why do we spend **public
money** to close the
research results behind
limited access
**subscriptions scientific
journals?**

Research Evaluation



Based on bibliometric indexes or, for non-bibliometric sectors, on selected «fascia A» list of journals

H-index

For a **researcher**: the maximum value of h such that the given author has published h papers that have each been cited at least h times

For a given year y , the specific **journal** Impact Factor is:

$$IF_y = \frac{\text{Citations}_{y-1} + \text{Citations}_{y-2}}{\text{Publications}_{y-1} + \text{Publications}_{y-2}}$$

Impact Factor

Citation based indexes criticism

- Early career researchers are penalised
- The citation context is not considered (eg. Negative citation)
- They are influenced by the limitation of the citational databases (which are all owned by big scientific publishers)
- It can be manipulated by both authors and reviewers (self and cross citations)
- It does not take into account the number of authors in a paper and their contribution given
- It does not take into account research multidisciplinary
- It does not facilitate science freedom.

DORA, 2013, <https://sfdora.org/read/>

McKiernan, et al, 2019. <https://elifesciences.org/articles/47338>

Niles, et al, 2019. <https://www.biorxiv.org/content/10.1101/706622v1>

Alder, et al, 2008. <https://www.mathunion.org/fileadmin/IMU/Report/CitationStatistics.pdf>

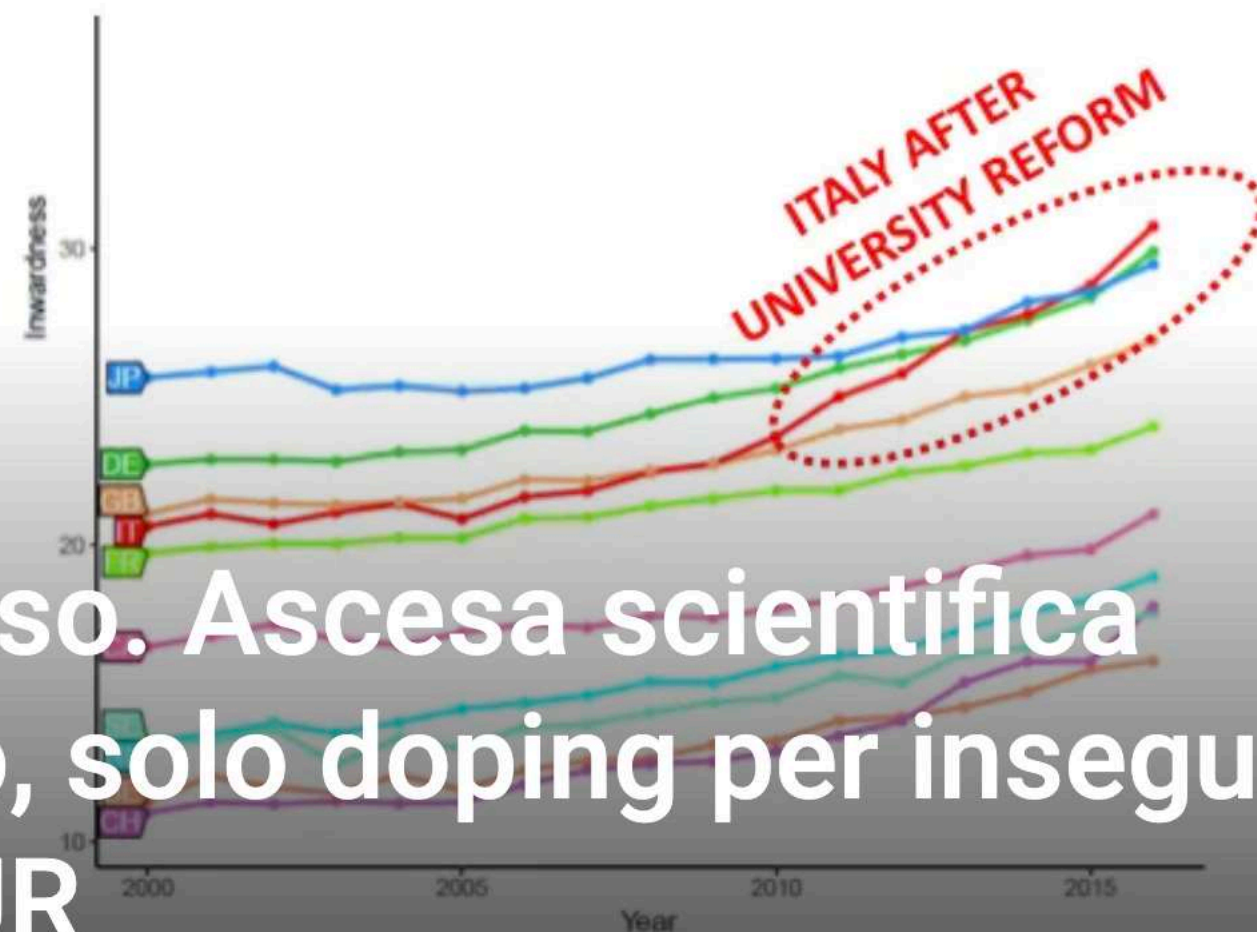


”

**What are we
evaluating?**

Anvur Bibliometria

Citarsi addosso. Ascesa scientifica dell'Italia? No, solo doping per inseguire i criteri ANVUR

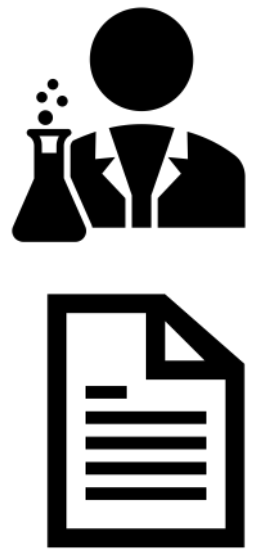


Di A.Baccini G.DeNicolao E.Petrovich - 11 Settembre 2019 117



Scientific Journals

Journal Editor



Reviewers

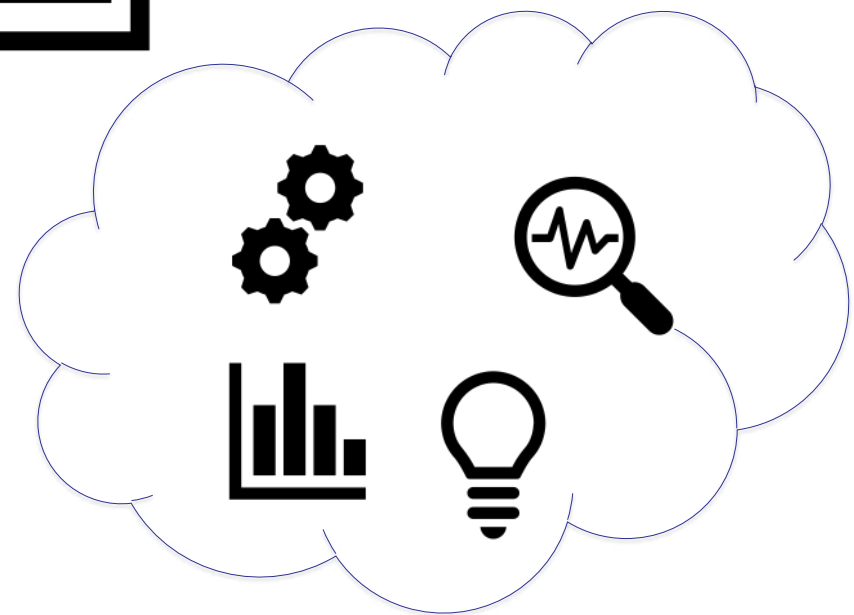


Journal Editor

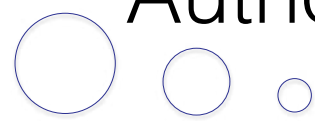


copyright

Editorial Version



Author



Pre-print

Post-print

Scientific Community





Claire Lehmann ✓
@clairlemon

Academic journals:

- don't fund research
- don't pay authors
- don't pay peer reviewers
- charge libraries & the public for access to research that is publicly funded
- issue copyright violations to researchers

Why do we put up with this?

3:03 PM · 2019-10-27 · [Twitter for iPhone](#)

Alternatives to APC-based Open Access Publishing

- **Community driven effort**
 - High energy physics: [SCOAP3 initiative](#)
- **Institutional publishing**
 - Università di Milano: [riviste.unimi.it](#)
- **Funder sponsored**
 - Wellcome Trust: [Wellcome Open Research](#)
 - Bill and Melinda Gates Foundation: [Gates Open Research](#)
 - European Commission: [Open Research Europe](#) (*we'll see this in details in a moment!*)



How about the rest?

A person is silhouetted against a vast, starry night sky. The Milky Way galaxy is visible, stretching across the frame. The person is standing on a dark, rocky outcrop, looking up at the stars. The overall scene is dark and atmospheric, with a deep blue and purple color palette.

Science is more than publishing papers in commercial platforms!

What are we missing in research evaluation?

Negative results

Data

Algorithms

Processes

Software

Methodologies

Educational Resources

Peer-review

Grey Literature

Project proposals

Leadership skills

Product
development

...

”

Publishing research without
data is simply advertising, not
science

Graham Steel



Why do we need to
share Data?

”

An experiment is
reproducible until another
laboratory tries to repeat it

Alexander Kohn

Reproducibility

Is (**still**) a principle of the Scientific Method!

Data is the proof of your papers: how can others trust your research without accessing the data?



NATIONAL

Most Scientific Research Data From the 1990s Is Lost Forever

A new study has found that as much as 80 percent of the raw scientific data collected by researchers in the early 1990s is gone forever, mostly because no one knows where to find it.

DANIELLE WIENER-BRONNER DEC 23, 2013

Highlights

- We examined the availability of data from 516 studies between 2 and 22 years old
- The odds of a data set being reported as extant fell by 17% per year
- Broken e-mails and obsolete storage devices were the main obstacles to data sharing
- Policies mandating data archiving at publication are clearly needed

Current Biology

REPORT | VOLUME 24, ISSUE 1, P94-97, JANUARY 06, 2014

The Availability of Research Data Declines Rapidly with Article Age

[Timothy H. Vines](#)   • [Arianne Y.K. Albert](#) • [Rose L. Andrew](#) • ... [Jean-Sébastien Moore](#) •

[Sébastien Renaut](#) • [Diana J. Rennison](#) • [Show all authors](#)

[Open Archive](#) • Published: December 19, 2013 • DOI: <https://doi.org/10.1016/j.cub.2013.11.014> •

Austerity theory

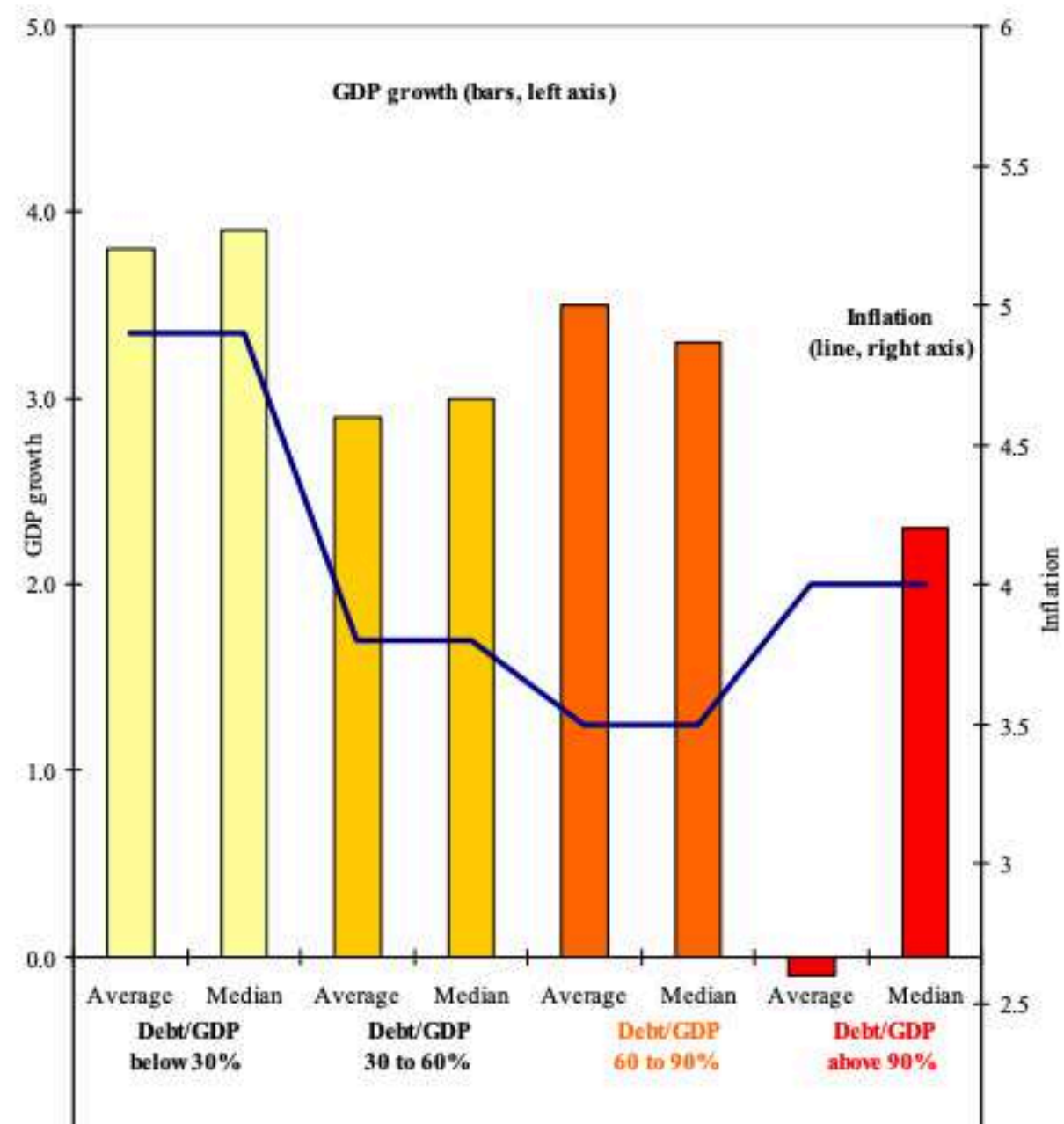
Thesis presented: A Country economic growth is strongly affected (and decreased) whenever the amount of debt exceeds 90% of the Gross Domestic Product.

The results shown in the paper have been used to support public austerity policies during the recent economic crisis.

But some considerations were **based on incorrect calculations.**

A PhD student who fails to replicate the results finds out when asking the authors for the original dataset.

Figure 2. Government Debt, Growth, and Inflation: Selected Advanced Economies, 1946-2009



La figura 2, tratta dal paper "Growth in a time of debt", di Carmen Reinhart e Kenneth Rogoff, era basata su calcoli errati. Il paper: https://www.nber.org/papers/w15639.pdf?new_window=1. Una ricostruzione della vicenda: <https://www.bbc.com/news/magazine-22223190>

Il debito pubblico deprime la crescita? Il clamoroso errore di Carmen Reinhart e Kenneth Rogoff [2013](#)

Publicato da keynesblog il 18 aprile 2013 in consigliati, Economia, ibt, Teoria economica



Carmen Reinhart e Kenneth Rogoff

Siti e blog di economia non parlano d'altro. Un famoso paper di Carmen Reinhart e Kenneth Rogoff, tra i più citati negli ultimi anni, nel quale si evidenziava l'esistenza di una correlazione tra un alto rapporto debito/PIL (maggiore del 90%) e la bassa crescita, è inficiato da gravi problemi metodologici e addirittura da un banale errore

Does High Public Debt Consistently Stifle Economic Growth? A Critique of Reinhart and Rogoff

Thomas Herndon*

Michael Ash

Robert Pollin

April 15, 2013

[Herndon, 2013](#)

JEL CODES: E60, E62, E65

Abstract

We replicate Reinhart and Rogoff ([2010a](#) and [2010b](#)) and find that coding errors, selective exclusion of available data, and unconventional weighting of summary statistics lead to serious errors that inaccurately represent the relationship between public debt and GDP growth among 20 advanced economies in the post-war period. Our finding is that when properly calculated, the average real GDP growth rate for countries carrying a public-debt-to-GDP ratio of over 90 percent is actually 2.2 percent, not -0.1 percent as published in Reinhart and Rogoff. That is, contrary to RR, average GDP growth at public debt/GDP ratios over 90 percent is not dramatically different than when debt/GDP ratios are lower.

We also show how the relationship between public debt and GDP growth varies significantly by time period and country. Overall, the evidence we review contradicts Reinhart and Rogoff's claim to have identified an important stylized fact, that public debt loads greater than 90 percent of GDP consistently reduce GDP growth.

Covid-19 and preprint and article retraction

Preprints allow for a wider and open discussion in science

Discussion does not end with the review process!

Retraction is actually good for science it means that the community checks results even outside of the official review process



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WITHDRAWN

Comments (6)

Hydroxychloroquine plus azithromycin: a potential interest in reducing in-hospital morbidity due to COVID-19 pneumonia (HI-ZY-COVID)?

Benjamin Davido, Thibaud Lansaman, Christine Lawrence, Jean-Claude Alvarez, Frederique Bouchand, Pierre Moine, Veronique Perronne, Aurelie Le Gal, Djillali Annane, Christian Perronne, Pierre De Truchis, COVID-19 RPC Team

doi: <https://doi.org/10.1101/2020.05.05.20088757>

This article is a preprint and has not been peer-reviewed [what does this mean?]. It reports new medical research that has yet to be evaluated and so should not be used to guide clinical practice.

Abstract

Info/History

Metrics

The authors have withdrawn this manuscript and do not wish it to be cited. Because of controversy about hydroxychloroquine and the retrospective nature of their study, they intend to revise the manuscript after peer review.

THE LANCET

ARTICLES | ONLINE FIRST

RETRACTED: Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis

Prof Mandeep R Mehra, MD · Sapan S Desai, MD · Prof Frank Ruschitzka, MD · Amit N Patel, MD

Published: May 22, 2020 · DOI: [https://doi.org/10.1016/S0140-6736\(20\)31180-6](https://doi.org/10.1016/S0140-6736(20)31180-6) · Check for updates

- Summary
- Introduction
- Methods
- Results
- Discussion
- Supplementary
- Material
- References
- Article Info
- Figures

Summary

Background

Hydroxychloroquine or chloroquine, often in combination with a second-generation macrolide, are being widely used for treatment of COVID-19, despite no conclusive evidence of their benefit. Although generally safe when used for approved indications such as autoimmune disease or malaria, the safety and benefit of these treatment regimens are poorly evaluated in COVID-19.

Methods

We did a multinational registry analysis of the use of hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19. The registry comprised data from 671 hospitals in six continents. We included patients hospitalised between Dec 20, 2019, and April 14, 2020, with a positive laboratory finding for SARS-CoV-2. Patients who received one of the treatments of interest within 48 h of diagnosis were included in one of four treatment groups (chloroquine alone, chloroquine with a macrolide, hydroxychloroquine alone, or hydroxychloroquine with a macrolide), and patients who received none of these treatments formed the control group. Patients for whom one of the treatments of interest was initiated more than 48 h after diagnosis or while they

<https://www.valigiablu.it/approfondimenti/ricercatori-lancet-idrossiclorochina/>
https://www.sciencemag.org/news/2020/06/two-elite-medical-journals-retract-coronavirus-papers-over-data-integrity-questions?utm_campaign=SciMag&utm_source=JHubbard&utm_medium=Facebook
<https://retractionwatch.com/retracted-coronavirus-covid-19-papers/>

Retraction Watch

Tracking retractions as a window
into the scientific process

Top 10 most highly cited retracted papers

Article	Year of retraction	Citing Articles before retraction	Citing Articles after retraction	Total cites (journals indexed by Web of Science)
1. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet . N Engl J Med April 4, 2013 Estruch R, Ros E, Salas-Salvado J, Covas MI, Corella, D, Aros F, Gomez-Gracia E, Ruiz-Gutiérrez V, Fiol M, Lapetra J, Lamuela-Raventos RM, Serra-Majem L, Pinto X, Basora J, Munoz MA, Sorli JV, Martinez JA, Martinez-Gonzalez MA, et al., for the PREDIMED Study Investigators	2018	1895	371	2266
2. Visfatin: A protein secreted by visceral fat that mimics the effects of insulin . SCIENCE, JAN 21 2005 Fukuhara A, Matsuda M, Nishizawa M, Segawa K, Tanaka M, Kishimoto K, Matsuki Y, Murakami M, Ichisaka T, Murakami H, Watanabe E, Takagi T, Akiyoshi M, Ohtsubo T, Kihara S, Yamashita S, Makishima M, Funahashi T, Yamanaka S, Hiramatsu R, Matsuzawa Y, Shimomura I.	2007	228	1096	1324
3. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children . LANCET, FEB 28 1998 Wakefield AJ, Murch SH, Anthony A, Linnell J, Casson DM, Malik M, Berelowitz M, Dhillon AP, Thomson MA, Harvey P, Valentine A, Davies SE, Walker-Smith JA	2010	633	669	1302
4. An enhanced transient expression system in plants based on suppression of gene silencing by the p19 protein of tomato bushy stunt virus . PLANT JOURNAL, MAR 2003 Voinnet O, Rivas S, Mestre P, Baulcombe D.	2015	895	271	1166
5. Cardiac stem cells in patients with ischaemic cardiomyopathy (SCIPIO): initial results of a randomised phase 1 trial . LANCET, NOV 2011 Belli, Roberto; Chugh, Atul R.; D'Amario, Domenico; et al.	2019	904	22	926
7. TREEFINDER: a powerful graphical analysis environment for molecular phylogenetics . BMC EVOLUTIONARY BIOLOGY, JUN 28 2004 Jobb G, von Haeseler A, Strimmer K.	2015	772	132	904
6. Purification and ex vivo expansion of postnatal human marrow mesodermal progenitor cells . BLOOD, NOV 1 2001 Reyes M, Lund T, Lenvik T, Aguiar D, Koodie L, Verfaillie CM.	2009	600	292	892
8. Viral pathogenicity determinants are suppressors of transgene silencing in Nicotiana benthamiana . EMBO JOURNAL, NOV 16 1998 Brigneti G, Voinnet O, Li WX, Ji LH, Ding SW, Baulcombe DC	2015	773	54	827
9. Spontaneous human adult stem cell transformation . CANCER RESEARCH, APR 15 2005 Rubio D, Garcia-Castro J, Martín MC, de la Fuente R, Cigudosa JC, Lloyd AC, Bernad A.	2010	326	429	755
10. Combination treatment of angiotensin-II receptor blocker and angiotensin-converting-enzyme inhibitor in non-diabetic renal disease (COOPERATE): a randomised controlled trial . LANCET, JAN 11 2003 Nakao N, Yoshimura A, Morita H, Takada M, Kayano T, Ideura T.	2009	583	148	731

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The Retraction Watch
Leaderboard

Top 10 most highly cited re-
tracted papers

28. [Thomas M Rosica](#) (23) See also: [our coverage](#)

29. [Alfredo Fusco](#) (22) See also: [our coverage](#)

30. [M Ghoranneviss](#) (22) See also: [our coverage](#)

31. [Anil K Jaiswal](#) (22) See also: [our coverage](#)

32. [Gilson Khang](#) (22) See also: [our coverage](#)



<https://retractionwatch.com/>



BUT!

**This is all about to
change...**

Worldwide ...

Position Statement and Recommendations on Research Assessment Processes



RETHINKING RESEARCH ASSESSMENT IDEAS FOR ACTION



5 COMMON MYTHS ABOUT EVALUATION

Hiring, promotion, and tenure decisions are largely made on "merit."

Quality research is easy to recognize and rises to the top

JIF and other similar journal-based indicators measure research quality

Researchers mostly care about journal reputation

Assessment practices will naturally improve over time

Assessing research and researchers, especially in research-intensive institutions, frequently relies on indicators like Journal Impact Factor (JIF) and similar measures as proxies for quality in research, promotion, and tenure (RPT) decisions. But a closer examination indicates that the perceived value of JIF is often grounded in **five common myths**:

Large volumes of applications for faculty searches make it difficult for evaluators to distinguish between top-tier candidates, and unintended biases—like the halo effect, availability, and confirmation bias—influence decision making.

Novel research, including breakthrough Nobel-prize winning work¹, often becomes influential (and cited) outside of the JIF measurement window², and findings with significant societal impact are not always published in journals with a high JIF.

JIFs are intended to reflect overall journal measures, and do not provide reliable or scientifically sound information about individual articles or researchers³.

Forty percent of research-intensive institutions in North America mention JIF in RPT documents, but interpret it inconsistently to mean quality, importance, or prestige⁴.

Faculty members claim to prioritize peer readership when publishing, yet the perception that their peers value prestige and a reliance on university rankings puts pressure on researchers to publish their work in high impact factor journals⁵.

"Invisible work" like service is typically not valued in RPT, yet disproportionately falls on women and other scholars historically excluded from research^{6,10}. Based on a model of current post-doc to faculty transitions, faculty diversity will not significantly increase until 2080 without active intervention¹¹.

Analogous examples of these myths exist, both inside and outside of science:



The European University Association and Science Europe Join Efforts to Improve Scholarly Research Assessment Methodologies

14 May 2019

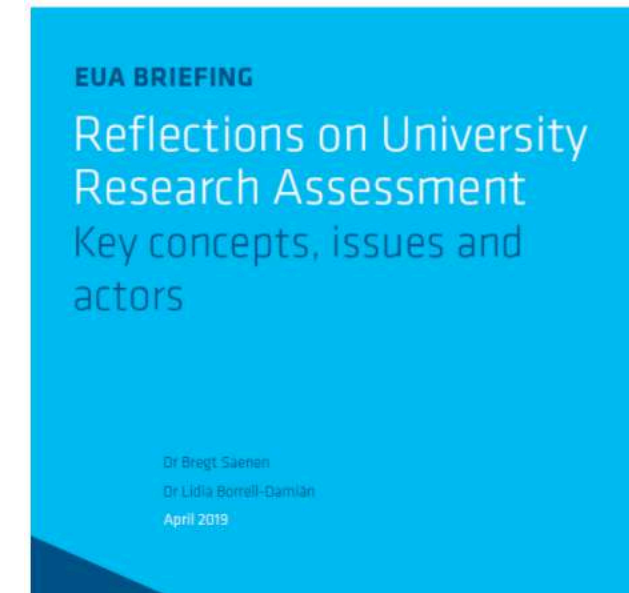
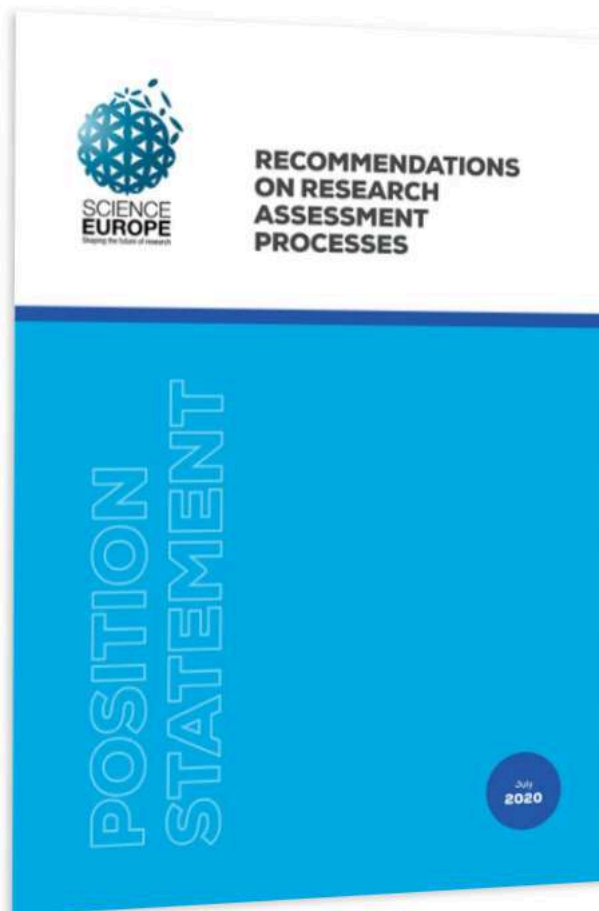
Evaluating research and assessing researchers is fundamental to the research enterprise and core to the activities of research funders and research performing organisations, as well as universities. The European University Association (EUA) and Science Europe are committed to building a strong dialogue between their members, who share the responsibility of developing and implementing more accurate, open, transparent and responsible approaches, that better reflect the evolution of research activity in the digital era.

Today, the outcomes of scholarly research are often measured through methods based on quantitative, albeit approximate, indicators such as the journal impact factor. There is a need to move away from reductionist ways of assessing research, as well as to establish systems that better assess research potential. Universities, research funders and research performing organisations are well-placed to explore turning these innovations into systemic

EUA and Science Europe are committed to:

- support necessary changes for a better aim at evaluating the merits of research, a fairer and more transparent assessment process and researchers;
- recognise the diversity of research appropriate to each research field and
- consider a broad range of criteria to re-evaluate and ascertain assessment processes all scientific contributions appropriate

EUA and Science Europe will launch joint assessment practices. Building on these opportunities for joint actions, with a view to research funders and research performing



5 DESIGN PRINCIPLES

to help institutions experiment with and develop better research assessment practices

Instill standards and structure into research assessment processes

This might look like... Tools like narrative CVs and assessment matrices¹² provide standards to increase consistency in decision-making. Discussion amongst evaluators can be used to define expectations and identify desirable qualities before any assessment takes place.

Prioritize equity and transparency of research assessment processes

This might look like... Neelhi Bhalha compiled a checklist of proven strategies to increase equity in hiring¹³. The Molecular, Cell and Developmental Biology Department at UC Santa Cruz includes untenured faculty in departmental tenure decisions to depolarize tenure decisions to process. Other institutions invite postdocs to "chalk talks" of faculty candidates discussing their future plans to provide insight into the faculty interview process.

Foster a sense of personal accountability in faculty and staff

This might look like... The Universitat Oberta de Catalunya established a working group¹⁴ to develop and implement an action plan for responsible research assessment. The University of Utrecht hosted a series of town halls¹⁵ to collect feedback before revising their policies. Make it explicit that it's everyone's responsibility to "stop the line" in the face of suspected bias at the beginning of every decision-making situation.

Take a big picture or portfolio view toward researcher contributions

This might look like... The Biology Department at the University of Richmond evaluates the applicant pool to better identify the subset of faculty candidates that match their needs, rather than focusing on individuals¹⁶. Cluster hires can help institutions think about hiring in terms of their larger academic portfolio¹⁷. They are also a proven strategy to increase diversity.

Refine research assessment processes through iterative feedback

This might look like... Make short and long-term goals for new policies and practices to measure success. No process is perfect; there needs to be flexibility to revisit and refine policies and practices as needed.

References
 1. <https://www.aphis.usda.gov/wildlife-services/news-stories/2019/05/2019-05-20-aphis-usda-wildlife-services-press-release-2019-05-20>
 2. https://www.audible.com/bestsellers/books/177241_uk_nov_2018
 3. <https://doi.org/10.1016/j.joi.2017.05.001>
 4. <https://www.nature.com/articles/s41598-019-45187-4>
 5. <https://doi.org/10.1016/j.joi.2017.05.001>
 6. <https://doi.org/10.1016/j.joi.2017.05.001>
 7. <https://doi.org/10.1016/j.joi.2017.05.001>
 8. <https://doi.org/10.1016/j.joi.2017.05.001>
 9. <https://doi.org/10.1016/j.joi.2017.05.001>
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 15. <https://doi.org/10.1016/j.joi.2017.05.001>
 16. <https://doi.org/10.1016/j.joi.2017.05.001>
 17. <https://doi.org/10.1016/j.joi.2017.05.001>
 18. <https://doi.org/10.1016/j.joi.2017.05.001>

ELEMENTI PRELIMINARI DEL PROGRAMMA NAZIONALE PER LA RICERCA 2021-2027

CONSU

Agosto 2



Sostenere:

- Produzione di dati FAIR della ricerca scientifica come pratica standard (dati FAIR-by-design) per popolare tempestivamente EOSC con dati di alta qualità e riproducibilità, senza rallentare il lavoro dei ricercatori
- Libero accesso alle pubblicazioni scientifiche
- Attualizzazione della valutazione della ricerca superando i criteri bibliometrici di origine commerciale e valorizzando i contributi efficaci alla Scienza Aperta
- Coinvolgimento di ricercatori, EPR, infrastrutture di ricerca nell'adozione delle pratiche di Scienza Aperta
- Formazione dei ricercatori e di nuove figure tecniche di supporto alla gestione dei dati della ricerca (data scientist, data steward)

- Piano Nazionale Scienza Aperta e EOSC: ANALISI
- Piano Nazionale Scienza Aperta e EOSC: PROPOSTE
- Piano Nazionale Scienza Aperta e EOSC: PRIORITÀ



Contenuti di riferimento per la domanda n. 10 del questionario online

Piano Nazionale Scienza Aperta e EOSC: ANALISI



PUNTI DI FORZA

- Ruolo dell'Italia fra i fondatori di EOSC tramite ICDI—Italian Computing and Data Infrastructure
- Rete delle Infrastrutture di Ricerca operanti in Italia, degli EPR, dei Consorzi e delle Università e loro patrimonio di dati
- Partecipazione di molti ricercatori italiani a Infrastrutture di Ricerca e Digitali europee

AZIONI

- Organizzazione della ricerca diffusa per la produzione di dati FAIR e l'accesso agli archivi FAIR,

- Attualizzazione della valutazione della ricerca superando i criteri bibliometrici di origine commerciale e valorizzando i contributi efficaci alla Scienza Aperta
- Coinvolgimento di ricercatori, EPR, infrastrutture di ricerca nell'adozione delle pratiche di Scienza Aperta
- Formazione dei ricercatori e di nuove figure tecniche di supporto alla gestione dei dati della ricerca (data scientist, data steward)



Ministero dell'Università e della Ricerca


ELEMENTI PRELIMINARI DEL PNR 2021-2027

Agosto 2020

41



Open Science

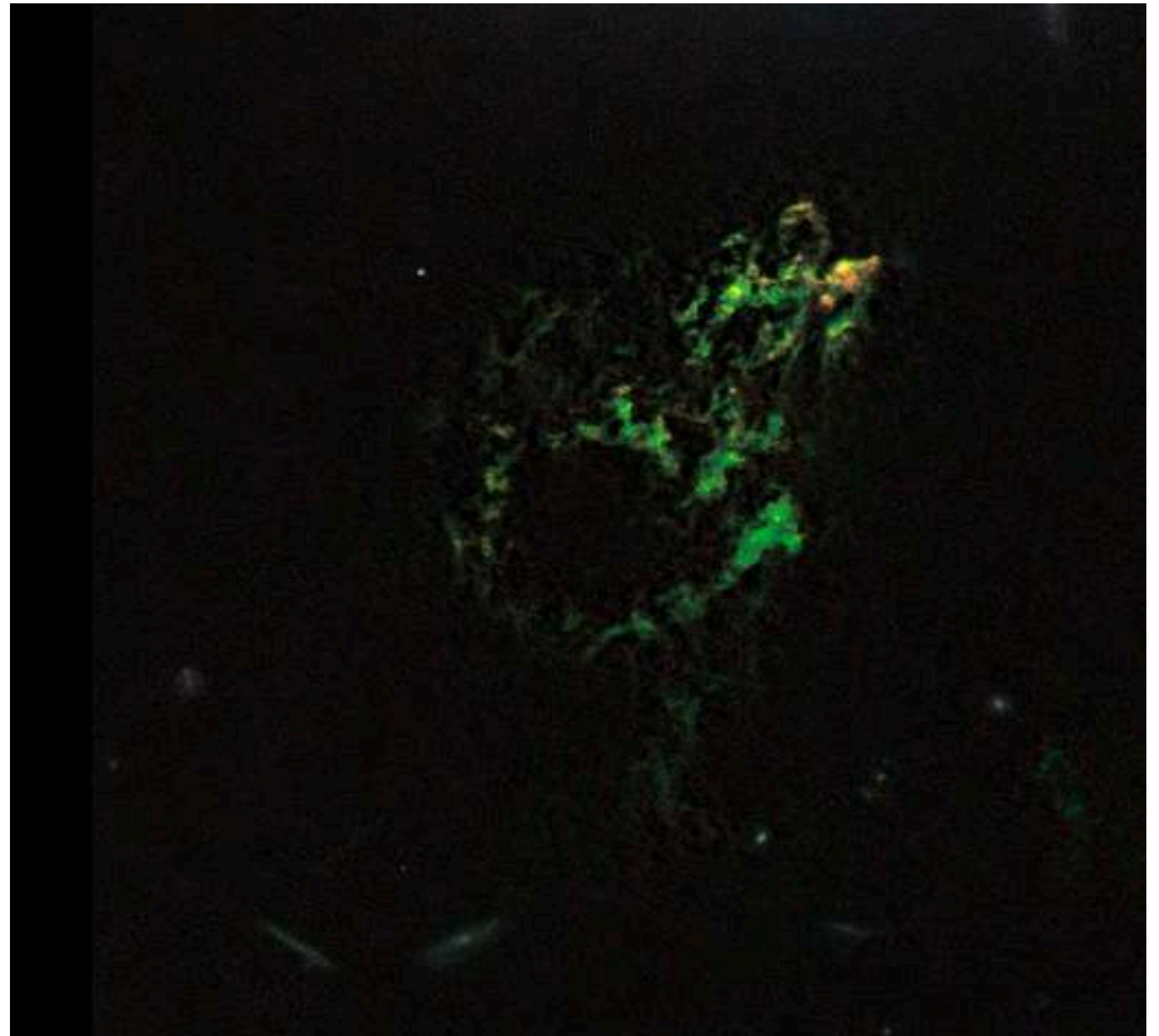


*The opposite of Open
Science is not Closed
Science. It is Bad
Science*

Jon Tennants

Hanny's Voorwerp

It is a new galaxy that was detected thanks to the collaborative project Galaxy Zoo, that open the universe observation data to the citizens. The name derives from the Dutch teacher who first discovered it.



Open Zika

Open Science based collaborative project on Zika virus:

<http://openzika.ufg.br/>



The World Health Organization has declared the Zika virus to be a global public health emergency. This was due to the rapid spread of the virus in the Americas, and concerns about its link to a rise in severe neurological diseases. Most notably, some pregnant women who have contracted the Zika virus have given birth to infants with brain development issues caused by a condition called microcephaly. In April 2016, the Centers for Disease Control confirmed the link between the Zika virus in pregnant women and cases of microcephaly in some fetuses and newborns.

Until recently, there has been relatively little research about the Zika virus – in fact, there is no known effective treatment, cure or vaccine.

The OpenZika project on IBM's World Community Grid is a global research collaboration, led by Dr. Carolina Horta at the Universidade Federal de Goiás, Brazil. The main



Collaboration

«It is imperative to leverage scientific innovations and support principles of openness and inclusiveness in processes that generate solutions to the severe health menace that is likely to bring significant hardships to humanity.»

[UNESCO - Open access to facilitate research and information on COVID-19](#)



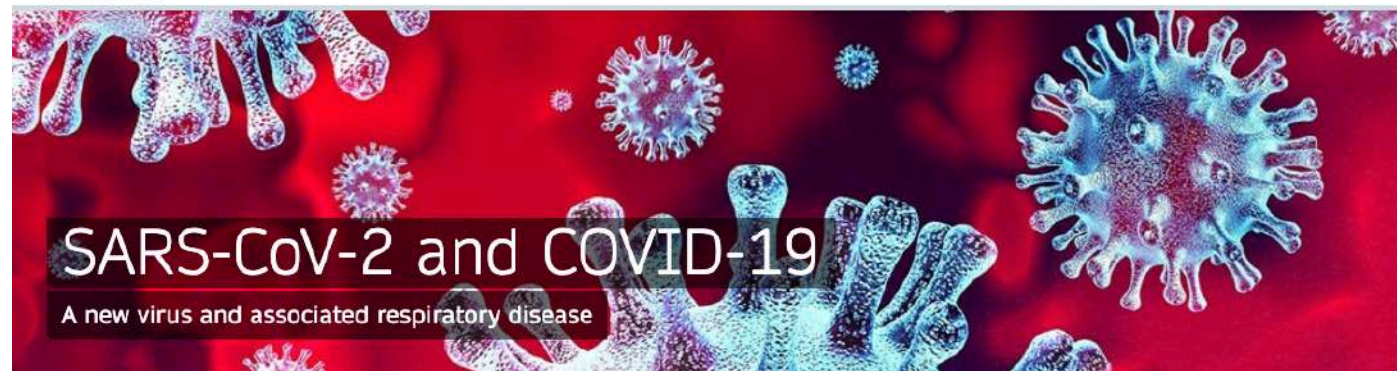
CBC.CA

'We're opening everything': Scientists share coronavirus data in unprecedented way to contain, treat disease | CBC News

SPRINGER NATURE

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Home



Springer Nature is committed to supporting the global response to COVID-19 enabling fast and direct access to the latest available research, evidence, and data.



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Elsevier coronavirus and Covid-19 related full text articles and chapters will be provided for as long as needed while the public health emergency is ongoing. Research tools and selected Virology and Infectious Disease Journals are open to coronavirus researchers through January 31, 2021.

Share this:

New York, March 13, 2020



Why Open Science?

- Currently, the scientific communication system is regulated by market interests of big commercial publishers and outdated research assessment criteria. Studies and publications are not accessible because enclosed behind expensive paywalls (usually thousands of dollars) that nobody can afford (doctors, professionals, SMEs...)
- Every institution pays **four times** for research: salaries, research funds, subscriptions to “buyback” the researches, rights to reuse
- All this with public funds; every year single institutions spend millions of euros for subscriptions to journals (instead of on research)
- Without forgetting that **neither authors nor reviewers are paid!**



”

Schimmer, R., Geschuhn, K. K., & Vogler, A. (2015). Disrupting the subscription journals' business model for the necessary large-scale transformation to open access. doi:10.17617/1.3.

Estimation: **10 Billions Dollars**
used for journal subscriptions

That is the money Institutions pay to
re-buy the article their own
researchers write!

”

This is not about saving
money, it is about spending
**public money in a better
way!**

Open Science: Science the correct way!

Open Science means: open each step of the research cycle.

- Open Science principles are: **transparency, reproducibility, collaboration, inclusiveness, accessibility, accuracy, re-use**
- Open Science steps from the concept that the research that is funded with **public money** has to be made **immediately available** to the community: «*every EU citizen has the right to access and benefit from knowledge produced using public funds*» [Neelie Kroes, European Commission]
- The **European Commission** and a long list of **International Funders** made a clear choice towards Open Science



Open Science

Open Science means a **broader access** to **publicly funded research results** and therefore helps to:

- build on previous research results (improved quality of results)
- encourage **collaboration** and avoid duplication of effort (**greater efficiency**)
- speed up **innovation** (faster progress to market means faster growth)
- **involve citizens** and society (improved transparency of the scientific process).



Research
Infrastructures

Open Science

Research
Integrity

Open Access
Publications

Open
Software

Open Access
Data

Open
Metodologies

Open
Workflows/Protocols

Open Education

Open Peer-Review

Citizen
Science

Evaluation:
Altmetrics

The main pillar of
Open Science is

OPEN ACCESS

to publications
and research data

Open Access




Open Access is «free and
unrestricted online access to
research outputs (texts and data)»



Beware!

Open Access
doesn't mean
paying for
publishing!



How do you give
access to your
production?

Through a
Repository

Open Access Repository

A repository stores Open Access digital objects and makes them available and downloadable. It's accessible and interoperable through a OAI-PMH protocol and it deploys a **long-term archiving policy**

Institutional

Thematic/Disciplinary

Literature

Data

Catch All

How to chose your repository

Literature repository: Open Access Repository Directory

www.opendoar.org

Data repository: Registry of Research Data Repository

<https://www.re3data.org/>



Why do you need to deposit in a Repository?

Preserve

Repositories are managed by institutions, countries, transnational infrastructures or solid scientific communities that implement long-term curation and preservation of content

A repository provides a public interface that allows anyone to access the metadata of digital objects. The author can assign different access rights for attachments (open, restricted, closed, embargoed, ...)

Share



Open Access to Scientific Literature

- There are two ways to implement Open Access to **scientific literature** :
 - **Green Open Access**: when the Open Access version of papers, wherever they have been published, is deposited in open archives (**repositories**), in compliance with copyright regulations; editors that may retain the rights can require an embargo period (months in which the deposited paper remains closed).
 - **Gold Open Access**: the publication in Open Access Journals, which are journals without subscription for readers, with transparent peer review and which leaves the rights to the authors; in 26% of cases they apply APC – Article Processing Charges – to support editorial costs.
- To guarantee the reuse, authors should choose open licenses (ie. [Creative Commons](#), which have 4 criteria: BY, SA, NC, ND)



Deposit in literature Repository

- The possible versions are:
 - **PRE-PRINT**: your final draft, as submitted to the journal (does not have reviewers comments yet)
 - **POST-PRINT or ACCEPTED MANUSCRIPT**: the final version, with reviewers comments, identical to the published one except for the editorial layout
 - **EDITORIAL PDF or PUBLISHED VERSION**: the exact version published in the journal, with layout and graphic
- To know which version you can deposit and the eventual period of embargo, you can check [SHERPA-RoMEO](#) database
- To find an Open Access Journal and find out if charges APC (Article Processing Charges), you can check DOAJ, [Directory of Open Access Journals](#)



10 Myths around open scholarly publishing

Myth 3

Approval by peer review proves that you can trust a research article

The current peer review system is prone to a number of flaws including corruption, human bias and ghostwriting

Myth 1

Preprints will get your research 'scooped'

Preprints typically provide a time-stamp and a DOI, therefore establishing priority of discovery

Myth 2

JIF and journal branding are measures of quality for researchers

The JIF is a flawed metrics that was never meant to be used for evaluation of research and researchers

Myth 3

Approval by peer review proves that you can trust a research article

The current peer review system is prone to a number of flaws including corruption, human bias and ghostwriting

Myth 4

Without journal peer review, the quality of science suffers

Researchers are more than responsible and competent enough to ensure their own quality control as part of intrinsic scientific integrity

Myth 5

Open Access has created predatory publishers

Predatory journals have been around for a long time before the recent push towards Open Access publishing

Myth 6

Copyright transfer is required to publish and protect authors

Copyright transfer procedures do not protect authors nor contribute to the advancement of scientific progress

Myth 7

Gold Open Access is synonymous with the APC business model

Most DOAJ-indexed journals do not have APCs and are funded from other sources, such as research institutes and grants

Myth 8

Embargo periods on 'green' OA are needed to sustain publishers

Traditional journals can peacefully coexist with zero-embargo self-archiving policies on author manuscripts

Myth 9

Web of Science and Scopus are global databases of knowledge

Neither represent the sum of current global research knowledge including Africa, Latin America and Southeast Asia

Myth 10

Publishers add no value to the scholarly communication process

Publishers are responsible for quite some key functions, from peer-review management to production and archiving of final version articles

Myth 1

Preprints will get your research 'scooped'

Preprints typically provide a time-stamp and a DOI, therefore establishing priority of discovery

Tennant JP, Crane H, Crick T, Davila J, Enkhbayar A, Havemann J, Kramer B, Martin R, Masuzzo P, Nobes A, Rice C, Rivera-López BS, Ross-Hellauer T, Sattler S, Thacker P, Vanholsbeeck M. 2019. Ten myths around open scholarly publishing. *PeerJ*

Preprints 7:e27580v1 <https://doi.org/10.7287/peerj.preprints.27580v1>


European Commission and Open Science

Open Science in Europe

- Rewards and Incentives
- Research Indicators and Next-Generation Metrics
- Future of Scholarly Communication
- European Open Science Cloud
- FAIR Data
- Research Integrity
- Skills and Education
- Citizen Science

Integrated advice of the Open Science Policy Platform on 8 prioritised Open Science ambitions

[May 29, 2018](#)



EUROPEAN COMMISSION

[25 Apr. 2018](#)

Brussels, 25.4.2018
C(2018) 2375 final

Politiche nazionali e di ogni ateneo su Open Access e Open Data

COMMISSION RECOMMENDATION

of 25.4.2018

on access to and preservation of scientific information




European Commission

[Report](#), Sept.2017

Providing researchers with the skills and competencies they need to practise Open Science

Open Science Skills Working Group Report



European Commission

Evaluation of Research Careers fully acknowledging Open Science Practices

Rewards, incentives and/or recognition for researchers practicing Open Science

[Report on OS and careers, July 2017](#)

European Open Science Cloud - EOSC

EOSC aims at creating a **virtual research environment** to access and interoperate **research data** and other research outputs in Europe across the different **disciplines**.

Più informazioni su

- > <https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud>
- > www.eoscsecretariat.eu
- > <https://www.eosc-portal.eu/>



European Commission Open Research Publishing Platform

Launching in 2021

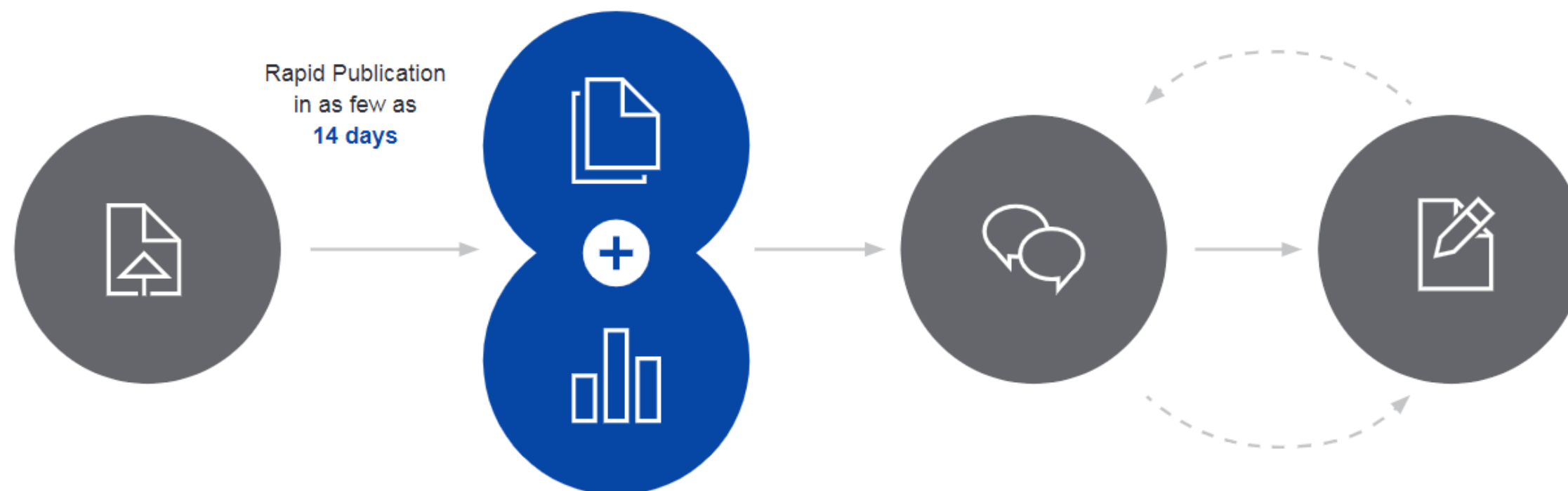
- Research publication platform for scientific papers – service dedicated to **EC funding beneficiaries**
- The platform will manage all the publication, post-publication, curation and preservation process
- **Open peer-review**
- Pre-prints and final versions of papers will be **open to the end users free of charge** (also non-scientists), and **licensed for re-use**
- **Full support of underlying data that meets the FAIR** (Findable, Accessible, Interoperable and Reusable) **principles** to enable reanalysis, replication and reuse, and thus improving reproducibility and increasing impact.

The screenshot shows the top part of the Open Research Europe website. At the top left is the European Commission logo. To its right is a search bar with the text 'Search' and a 'Search' button. Below the logo is the text 'Research and Innovation'. A dark blue navigation bar contains the text 'Open Research Europe' and three menu items: 'Home', 'Article Guidelines', and 'Scientific Advisory Board'. Below the navigation bar is a 'Home' link. The main content area features a headline: 'An Open Access publishing platform offering fast publication and open peer review for research conducted by Horizon 2020 and Horizon Europe beneficiaries.' Below the headline is a yellow 'Stay Updated' button. To the right of the headline is a red call-to-action button that says 'Now accepting submissions!'. Below the headline are four sections: 'What is it?', 'What is the scope?', 'Why are we doing this?', and 'Who's involved?'. Each section has a short paragraph of text.

<https://open-research-europe.ec.europa.eu>



ORE Publishing Model



Article Submission

Submitting an article is easy with our single-page submission system. The in-house editorial team carries out a basic check on each submission to ensure that all policies are adhered to.

Publication & Data Deposition

Once the authors have finalised the manuscript, the article (with its associated source data) is published, enabling immediate viewing and citation.

Open Peer Review & User Commenting

Expert reviewers are selected and invited, and their reports and names are published alongside the article, together with the authors' responses and comments from registered users.

Article Revision





Authors are encouraged to publish revised versions of their article. All versions of an article are linked and independently citable. Articles that pass peer review are indexed in external databases such as PubMed, Scopus and Google Scholar.

ORE: Open Peer Review Example

Home » Browse » Silent myelin-weighted magnetic resonance imaging

METHOD ARTICLE [EDIT VERSION](#) [Check for updates](#)

REVISED Silent myelin-weighted magnetic resonance imaging [version 2; peer review: 2 approved, 2 approved with reservations]

Tobias C. Wood ¹, Nikou L. Damestani¹, Andrew J. Lawrence², Emil Ljungberg ¹, Gareth J. Barker ¹, Ana Beatriz Solana³, Florian Wiesinger^{1,3}, Steven C.R. Williams ¹

[Author details](#)

Abstract

Background: Inhomogeneous Magnetization Transfer (ihMT) is an emerging, uniquely myelin-specific magnetic resonance imaging (MRI) contrast. Current ihMT acquisitions utilise fast Gradient Echo sequences which are among the most acoustically noisy MRI sequences, reducing patient comfort during acquisition. We sought to address this by modifying a near silent MRI sequence to include ihMT contrast.

Methods: A Magnetization Transfer preparation module was incorporated into a radial Zero Echo-Time sequence. Repeatability of the ihMT ratio and inverse ihMT ratio were assessed in a cohort of healthy subjects. We also investigated how head orientation affects ihMT across subjects, as a previous study in a single subject suggests this as a potential confound.

Results: We demonstrated that ihMT ratios comparable to existing, acoustically loud, implementations could be obtained with the silent sequence. We observed a small but significant effect of head orientation on inverse ihMTR.

Conclusions: Silent ihMT imaging is a comparable alternative to conventional, noisy, alternatives. For all future ihMT studies we recommend careful positioning of the subject within the scanner.

Keywords

ALL METRICS

419 VIEWS

52 DOWNLOADS

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Open Peer Review

Reviewer Status ✓ ? ✓ ? (i)

Reviewer Reports

	Invited Reviewers			
	1	2	3	4
Version 2 (revision) 13 Aug 20	✓ read		✓ read	
Version 1 21 Apr 20	? read	? read	? read	? read

- Richard Dortch** , Barrow Neurological Institute, Phoenix, USA
- Olivier Girard** , Aix-Marseille University, Marseille, France
Lucas Soustelle , Aix-Marseille Univ, CNRS, CRMBM UMR 7339, Marseille, France; SATT Sud-Est, Marseille, France
- Douglas Dean** , University of Wisconsin-Madison, Madison, USA; University of Wisconsin-Madison, Madison, USA; University of Wisconsin-Madison, Madison, USA
- Gunther Helms** , Lund University, Lund, Sweden

Alongside their report, reviewers assign a status to the article:

✓ **APPROVED**

The paper is scientifically sound in its current form and only minor, if any, improvements are suggested

? **APPROVED WITH RESERVATIONS**

Key revisions are required to address specific details and make the paper fully scientifically sound

✗ **NOT APPROVED**

Fundamental flaws in the paper seriously undermine the findings and conclusions

Visibility & credit for reviewers:

- Co-reviewing
- ORCID ids
- DOIs for reports

Plan-S

Plan S

Making full and
immediate Open
Access a reality

Plan S is an initiative for Open Access publishing that was launched in September 2018. The plan is supported by cOAlition S, an international consortium of research funders. Plan S requires that, **from 2021, scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms.**



cOAlition S

Funders that have endorsed Plan S and jointly working on its implementation

Supported by



National funders



Charitable and international funders



European funders



Join the coalition



Consequences of Plan-S

Transformative agreements:

- Large Institutions or Countries contracted different publishing models to allow their researchers to publish in OA all their works
- Publish and Read contracts
- Transparency on the contracts contents

Open Access Publishing in Springer Nature Journals

FinELib consortium's agreement with Springer Nature includes open access publishing in Springer's hybrid titles during the agreement term 1.10.2018-31.12.2020.

The author does not need to pay an APC (article processing charge). The charges are covered by the agreement.

Transformative agreements and Open Access. An example from Germany

Germany's Projekt DEAL and the publisher John Wiley & Sons have entered a **ground-breaking transformative agreement**, in line with the objectives of the Open Access 2020 initiative.

Under this new agreement, all authors affiliated with 700 academic institutions in Germany will retain copyright and their accepted articles will be published open access in Wiley journals. Almost 10,000 articles by German researchers are published a year in Wiley journals, constituting around 9% of the publisher's total output. The agreement also grants students and faculty read access to the full Wiley journal portfolio including backfiles starting with 1997. The national-level agreement is based on a "Publish&Read" model in which fees are paid by institutions-not for subscriptions but for open access publishing services.

The agreement has been open to the public since 18/02/2019.

Springer Nature and the Austrian Academic Library Consortium renew open access contract for another three years

Researchers and students in Austria continue to benefit from the proven "Read & Publish" model. | The agreement combines the opportunity to publish open access in more than 1,900 Springer Journals with access to more than 2,000 subscription journals.

Cambridge University Press and the University of California Agree to Open Access Publishing Deal

By admin / April 10, 2019



Springer Nature agrees new transformative deal with Norway

London, 27 June 2019

Springer Nature and the Unit consortium in Norway have agreed in principle a transformative read and publish deal for 2020-2022. This will allow researchers in Norway to read articles in journals on SpringerLink and Norwegian authors to publish Open Access (OA) in all of Springer Nature's Open Choice portfolio of hybrid journals, meaning all primary research articles with corresponding authors from Norway will be open and immediately available from the point of publication.

In addition, an agreement has been reached to ensure all Unit members are able to continue to access research published in Springer journals throughout 2019.

Complete list at: <https://esac-initiative.org/about/transformative-agreements/agreement-registry/>



Transformative agreements in Italy

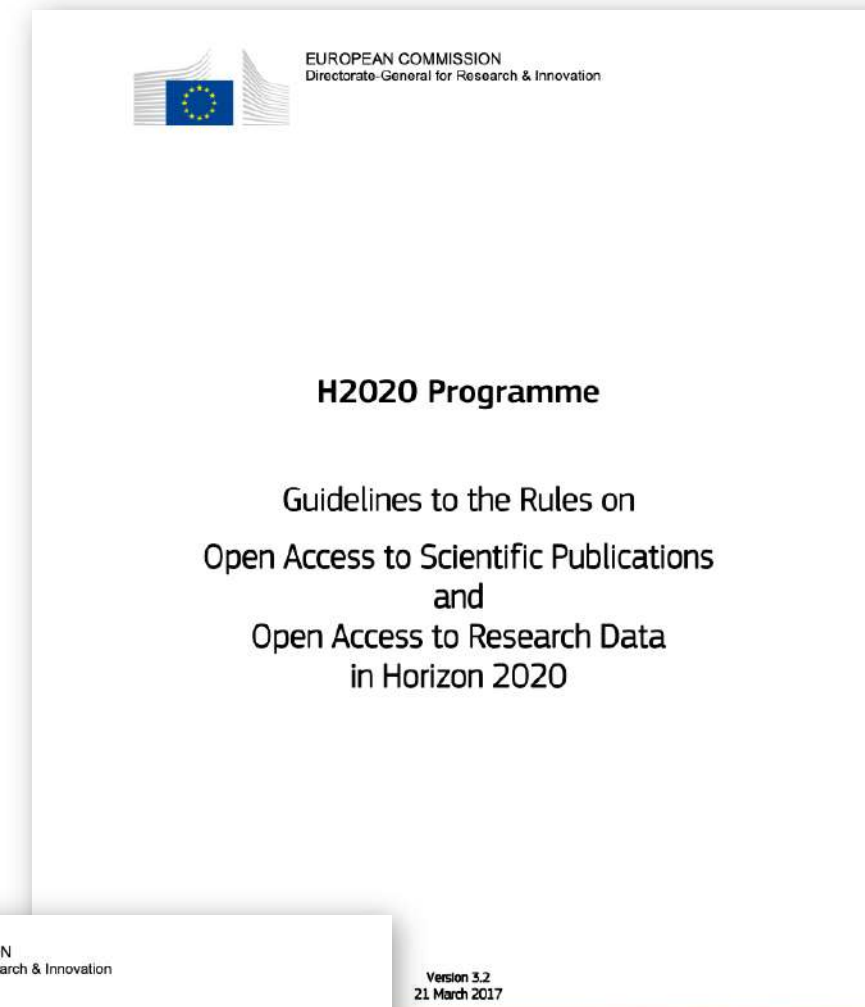
- **CRUI**: agreements with a group of publishers already in place (Springer, ACS, Cambridge UP, emerald, De Gruyter, Wiley, Elsevier), others are under development.
 - Reactions from the Open Science community: [AISA - Associazione Italiana per la promozione della Scienza Aperta, University of Milan.](#)
- **CNR**: [Read&Publish agreements signed](#) with AIP, IEEE, and RSC. [CNR team](#) estimated the number of articles published, and the overall cost for both subscriptions and APC for each publisher in the last 3 years.

H2020: guides and legal basis

Art. 29.2 e 29.3 of the Model Grant Agreement

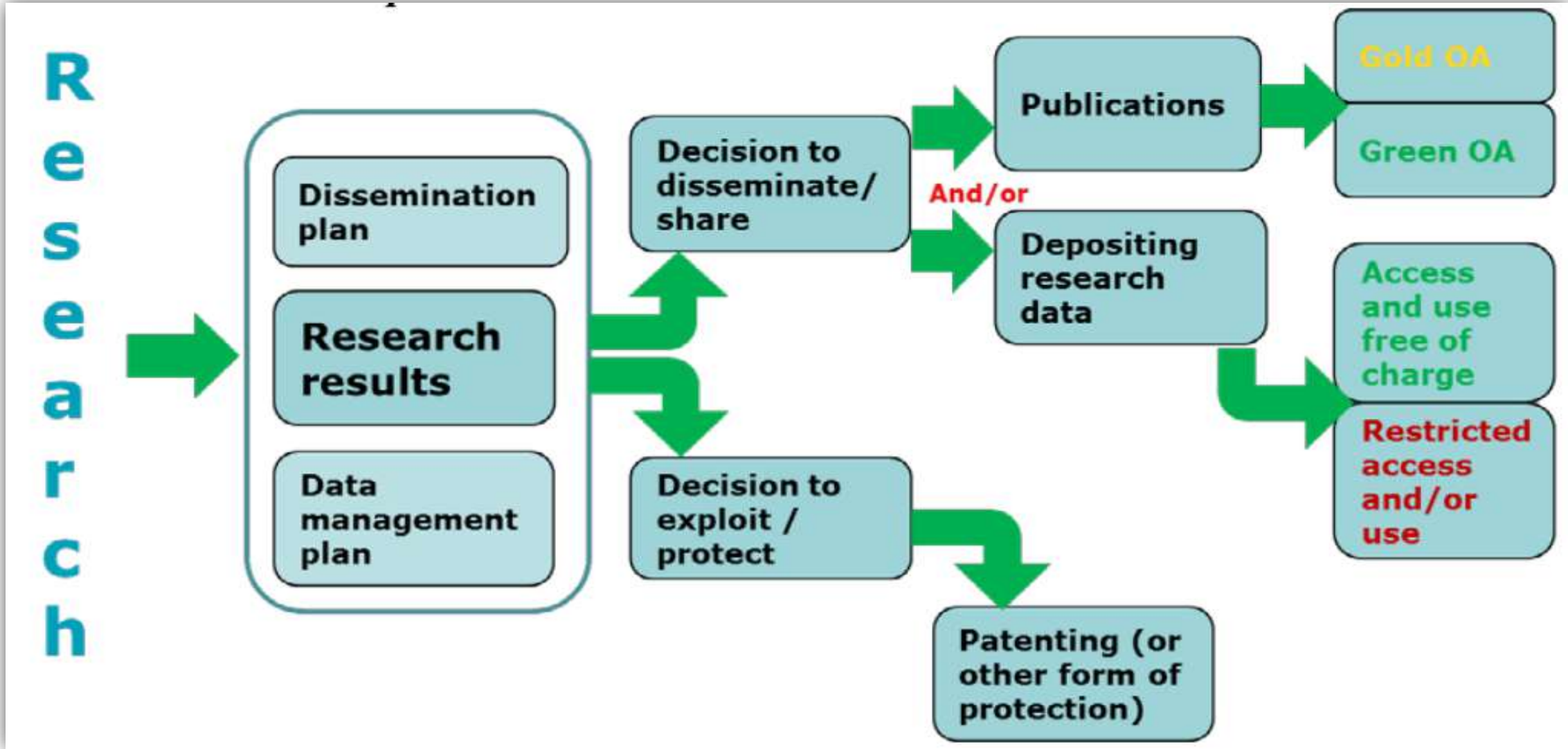
Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020

H2020 Programme Guidelines on FAIR Data Management in Horizon 2020



H2020 beneficiaries

Must decide whether to patent or publish



Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020



EC Open Access Mandate to Scientific Publications



- **Open by mandate:** each beneficiary must ensure open
- access to all peer-reviewed scientific publications relating to its results.
- Embargo period: at most 6 months (12 months for publications in the social sciences and humanities).
- **What to deposit?**
 - Post Print or Editorial Version (machine-readable electronic copy)
 - Metadata must contain project coordination (name of the action, acronym and grant number)
- **Where to deposit?**
 - A repository that is compliant to OpenAIRE guidelines

***Open by
mandate***

EC mandate on Open Access to research data



- **Open by default** (“Opt Out” always possible)
- **What to deposit**
 - Data produced by funded research that led to a scientific publication, but in general all types of data
 - Metadata with reference to the project
- **Where to deposit**
 - A repository that is compliant to OpenAIRE guidelines
- **What to produce**
 - Data Management Plan

***As Open As Possible
As Closed As Necessary***

«Opt Out» option of Open Data Pilot (ODP)



Industrial or commercial exploitation

Participation in the ODP is incompatible with the duty to protect results that can be reasonably exploited commercially or industrially



Security

Participation in the ODP is incompatible with the need for confidentiality related to security issues



Personal Data Protection

Participation in the ODP is incompatible with the rules on personal data protection



Achievement of project objectives

Participation in the ODP is incompatible with the achievement of project targets



No Data Produced/Gathered

The project doesn't require creating or gathering the data of the research

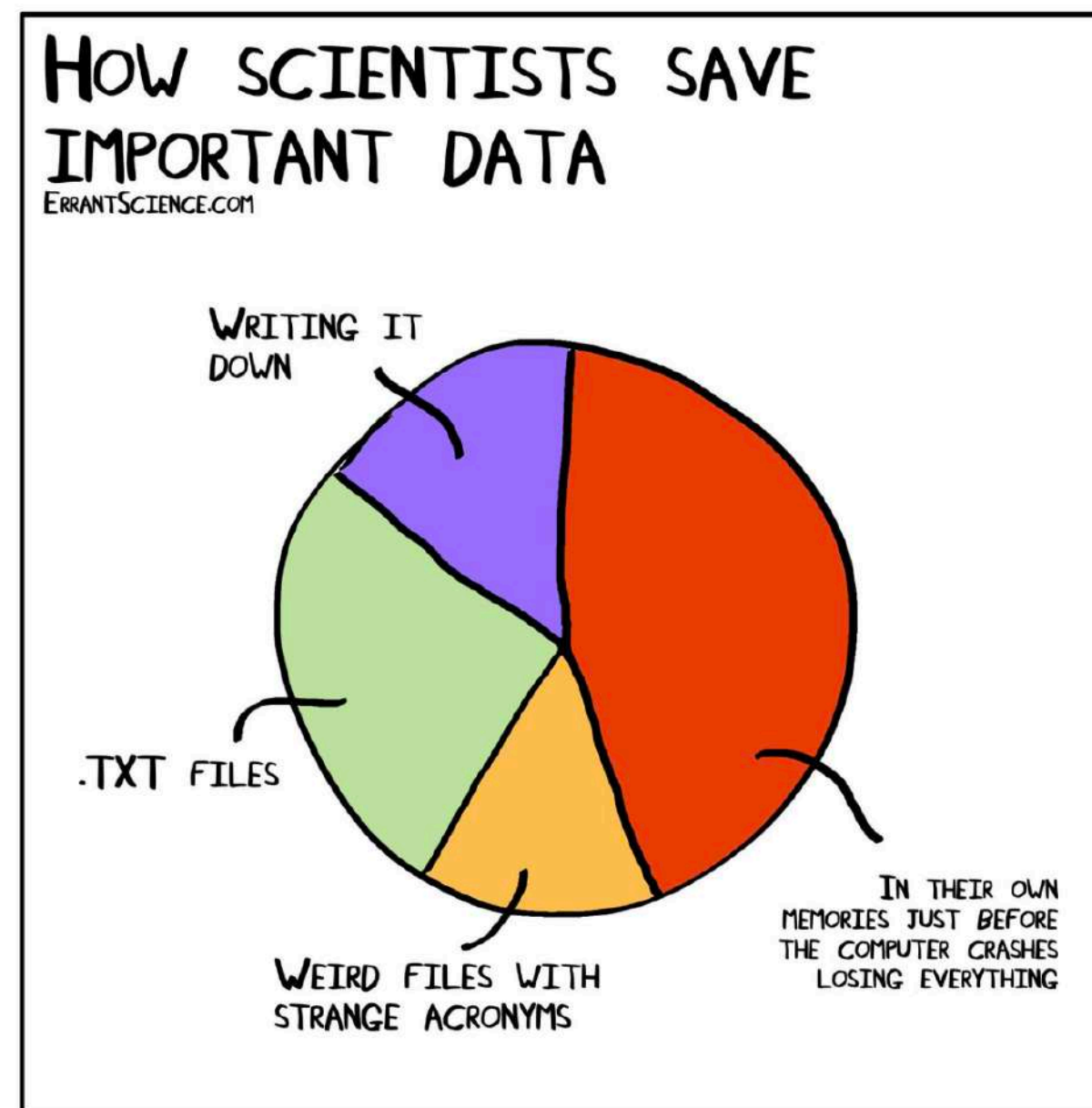


Other Legitimate Reasons

There are other legitimate reasons (to motivate in the proposal or in the Data Management Plan)

Research Data Management

- European Commission policies aims to spread correct aspects of **research data management**
- A **Data Management Plan** is required (mandatory deliverable within month 6)
- You need to make your data compliant with the FAIR principles even if you will not assign Open Access rights to it.



Data must be FAIR

Findable

it should be clear where data are located and can be cited!

Interoperable

Data should be easily integrated with other data, machine readable, and linked to other research results



Accessible

For at least 10 years! It does not mean that data is open, but it must be clear who and how can access the data.

Reusable

usable for re-analysis or new research (transparency, integrity)

FAIR does not mean Open

Once your data is FAIR, open it!



From 2014 until 2019, Moedas served as European Commissioner covering the portfolio of Research, Science and Innovation under the leadership of President Jean-Claude Juncker

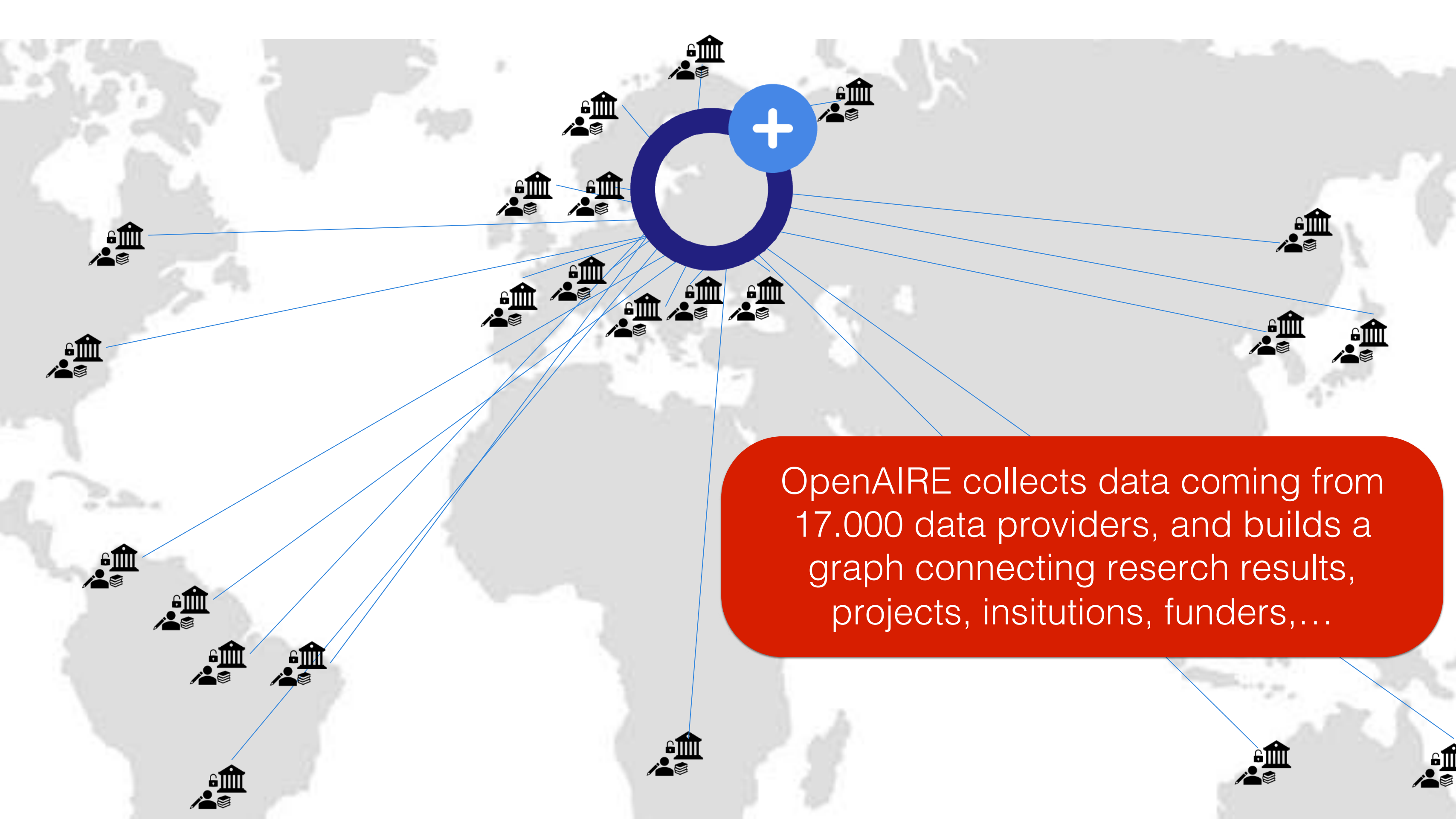


Be aware of possible **Sanctions!**

*Grant reduction or payment
suspension*

[Art. 43 of the Grant Agreement]






OpenAIRE collects data coming from 17.000 data providers, and builds a graph connecting research results, projects, insitutions, funders,...



Content Providers 17.000
Publications 40.000.000
Projects 3.000.000
Datasets 10.000.000
Software 230.000
Funders 21

Different perspectives of the OpenAIRE Graph

Institution



OpenAIRE EXPLORE

UNIGE

Università degli Studi di Genova

Organization Italy

Publications (0)	+
Projects (154)	+
Content Providers (1)	+

Repository



OpenAIRE EXPLORE

Archivio istituzionale della ricerca - Università di Genova

Institutional Repository OpenAIRE 3.0 (OA, funding)

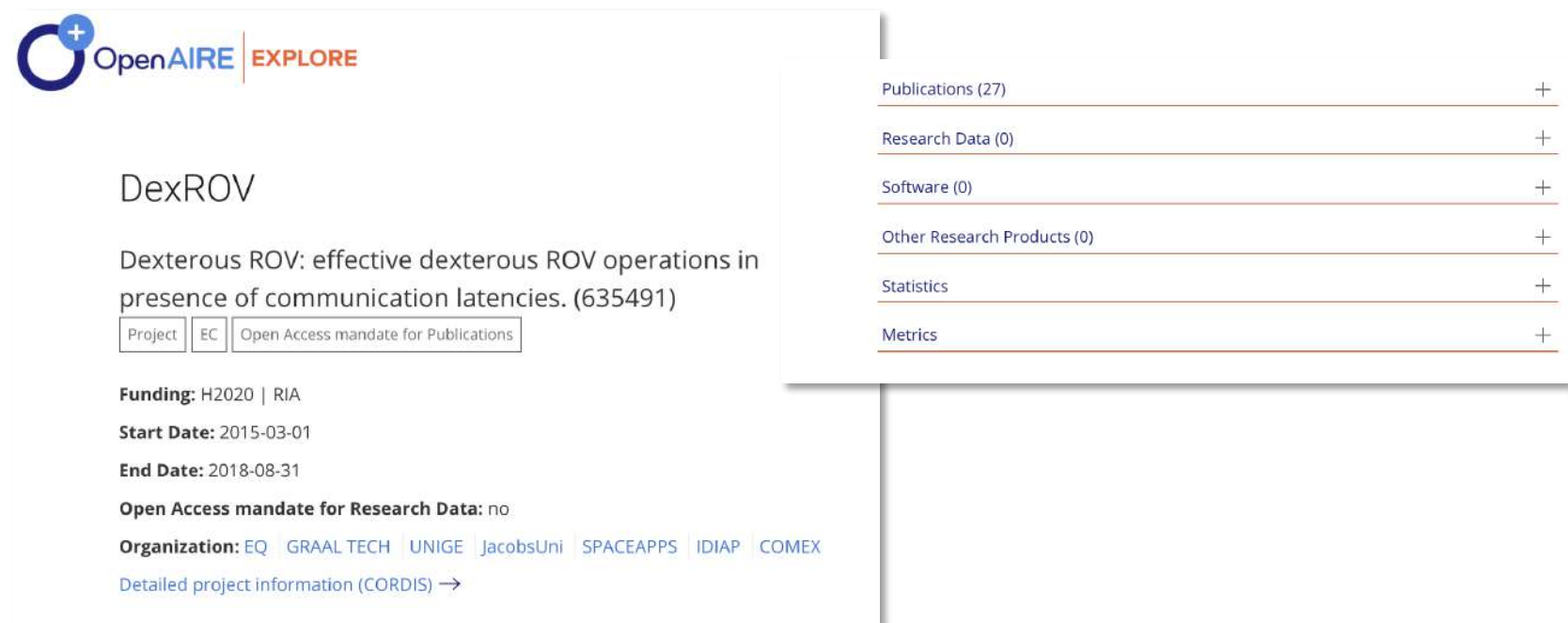
OAI-PMH: <https://iris.unige.it/oai/request?> →

Detailed content provider information (OpenDOAR) →

Countries: Italy

Publications (262)	+
Research Data (0)	+
Software (0)	+
Other Research Products (1)	+
Organizations (1)	+
Statistics	+
Metrics	+

Project



OpenAIRE EXPLORE

DexROV

Dexterous ROV: effective dexterous ROV operations in presence of communication latencies. (635491)

Project EC Open Access mandate for Publications

Funding: H2020 | RIA

Start Date: 2015-03-01

End Date: 2018-08-31

Open Access mandate for Research Data: no

Organization: EQ GRAAL TECH UNIGE JacobsUni SPACEAPPS IDIAP COMEX

Detailed project information (CORDIS) →

Publications (27)	+
Research Data (0)	+
Software (0)	+
Other Research Products (0)	+
Statistics	+
Metrics	+

Product



OpenAIRE EXPLORE

Interaction of hydrophobic polymers with model lipid bilayers

Article English OPEN

Bochicchio, D. ; Panizon, E. ; Monticelli, L. ; Rossi, G. (2017)

Publisher: Nature Publishing Group UK

Journal: Scientific Reports, volume 7 (eissn: 2045-2322)

Related identifiers: pmc: PMC5526983, doi: 10.1038/s41598-017-06668-0

Subject: Article

The interaction of nanoscale synthetic materials with cell membranes is one of the key steps determining nanomaterials' toxicity. Here we use molecular simulations, with atomistic and coarse-grained resolution, to investigate the interaction of three hydrophobic polymers with model lipid membranes. Polymer nanoparticles made of polyethylene (PE), polypropylene (PP) and polystyrene with size up to 7 nm enter easily POPC lipid membranes, localizing to the membrane hydrophobic core. For all three materials, solid polymeric nanoparticles become essentially liquid within the membrane at room temperature. Still, their behavior in the membrane core is not the same: PP and

SEARCH SHARE LINK CONTENT PROVIDERS SIGN IN

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Download from

Europe PubMed Central via PubMed Central (Article, 2017)

Nature Publishing Group UK/ Scientific Reports ?

Funded by

EC | NANOPLAST

EC | BioMNP

Cite this publication

select a citation style

Link this publication to...

OpenAIRE-Advance

OpenAIRE Advancing Open Scholarship (777541)

PROJECT EC OPEN ACCESS MANDATE FOR PUBLICATIONS AND RESEARCH DATA

Funding: H2020 | RIA

Start Date: 2018-01-01

End Date: 2020-12-31

Organization: LU SDU

ATHENA RC University of

UZH UOA IYTE IMI BAS

NHRF (EIE) CLARA UL

COAR e.V. OLH KTU U

UGOE UIO TU Delft CN

Detailed project information

Publications (19)

Research Data (1)

Software (2)

Other Research Products (1)

Statistics

Metrics

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Publications Research Data

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Grant Management Project Continuous Report

777541 (OpenAIRE-Advance) RIA

Call: H2020-EINFRA-2016-2017
Topic: EINFRA-12-2017 Unit: CNECT/C/01

Summary for publication Deliverables Ethics, DMP, Other Reports Milestones Critical Risks Publications Disseminat... Patents (IPR) Infrastruct... Open Data Gender ABS Regulation

Publications (19)

This project does not currently have any scientific publication

Suggested publications from OpenAIRE (19 publications)

No.	Type	Title	Authors	Title of the Journal/Proc./Book	Date of Acceptance	DOI	Repository Link	Actions
1	Other	OpenAIRE's DOIBoost - Boosting CrossRef for Research	La Bruzzo, Sandro; Manghi, Paolo; Mannocci, Ar		01/10/2018	10.5281/zenodo.1492766 10.5281/zenodo.1441058	Link	✕
2	Article in Journal	Editorial - Welcoming the first European peer review scientific journal created	Aliki Giannakopoulou		23/11/2018	10.5281/zenodo.1494901 10.5281/zenodo.1494902	Link	✕
3	Article in Journal	School's contribution to prevention of earthquakes	Goergia Drakoulakou		29/11/2018	10.5281/zenodo.1684547 10.5281/zenodo.1684548	Link	✕
4	Other	OpenAIRE Data Management Plan	Horst, Marek; Starczewski, Michał		08/07/2018	10.5281/zenodo.1699116 10.5281/zenodo.1699117	Link	✕
5	Article in Journal	Analysis and characterization of extra virgin olive oils	Andrea Chechetti; Martano Donato; Veltri Rosa		29/11/2018	10.5281/zenodo.1685819 10.5281/zenodo.1685820	Link	✕

Project publications (2 publications)

No.	Type	Title	Authors	Title of the Journal/Proc./Book	Number, date or freq. of the Journal/Proc./Book	Is Peer-reviewed?	Is Open Access?	DOI	Repository Link	Actions
1	Publication in	GDup: De-Duplication of Scholarly Communication Big Graphs	Claudio Atzori, Paolo Manghi, Alessia Bardi	2018 IEEE/ACM 5th International Conference on Big Data		Yes	No	10.1109/bdcat.2018.00025	Link	✕
2	Chapter in a B	A nyílt hozzáféréstől a nyílt tudomány felé OpenAIRE-Advance (2018-20	Judit Fazekas-Paragh, Gyöngyi Karácsony	NETWORKSHOP 2018 konferenciakiadvány		Yes	Green	10.31915/nws.2018.5	Link	✕

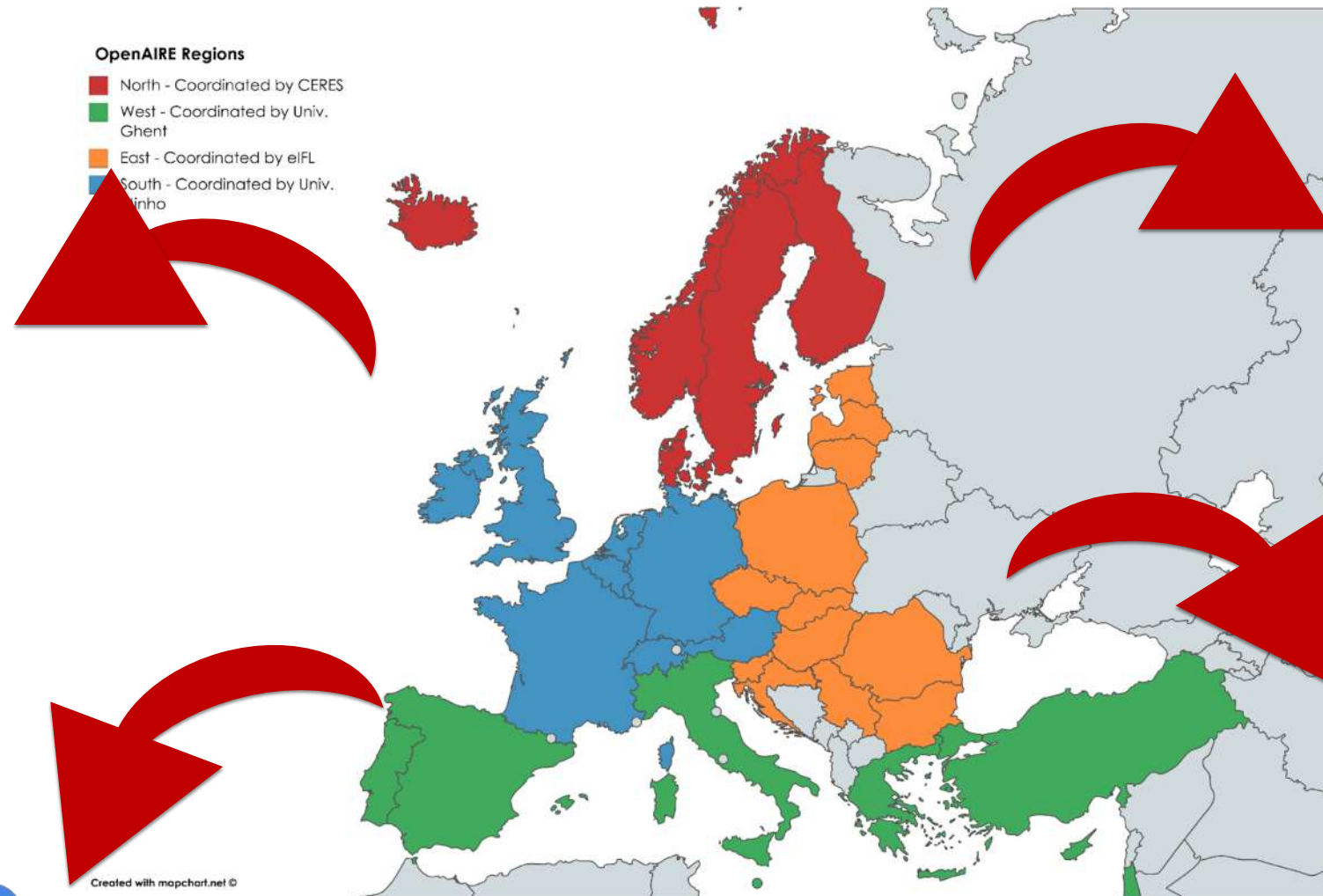
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Information is sent directly to the participant portal for scientific and financial reporting

National Open Access Desks (NOADs)

Facts

- Research is global, support is local
- Diversity in culture & maturity of national/local infras
- Not one size fits all in OA and open science



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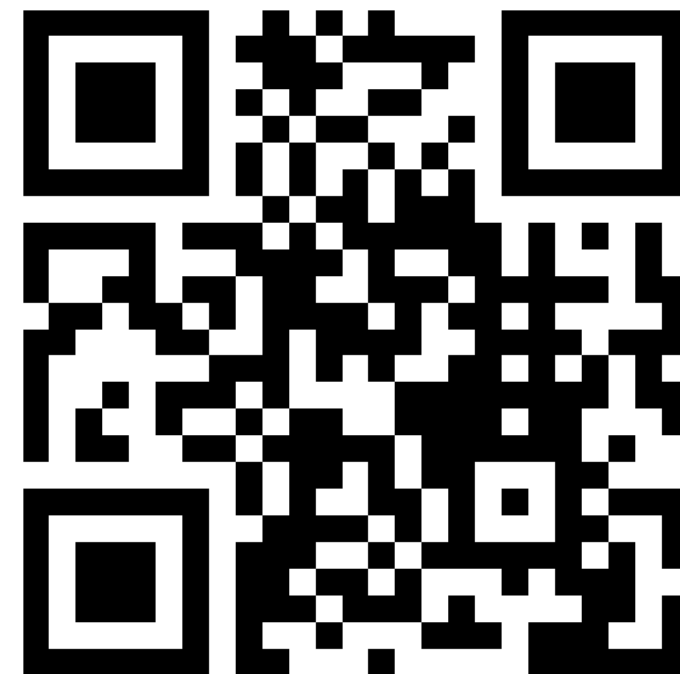


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Thank you!

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