Exploring the Value of Open (EVO)

An Introduction to Open Research

Kristen Ratan, Stratos
Maryrose Franko, HRA

September 7, 2022

Health
Research
Alliance

Welcome to the HRA EVO Program

- HRA's Open Science Community is sponsoring a one-year Exploring the Value of Open (EVO) Program with monthly webinar sessions, discussion groups, and opportunities to explore open science.
- The EVO program will cover not only the why, **but also the how**, and ways to measure impact of open research policies, practices, and incentives.

Kristen Ratan, Stratos

Salvatore La Rosa, CTF

Covid-19 has been a forcing function for open science

Arctic Ocean
Svalbard
Greenland
Russia
Canada
North Pacific Ocean
North Atlantic Ocean
Ukraine
Kazakhstan
Mongolia
Turkey
Libya
Egypt
Senegal
Niger
Sudan
Yemen
Nepal
India
Sri Lanka
Tanzania
Angola
Madagascar
South Atlantic Ocean
Indian Ocean

- Publishers opened access
- Researchers shared data
- Preprints were rapidly posted
- Funders shifted focus

The Nelson Memo (OSTP)

August 25, 2022

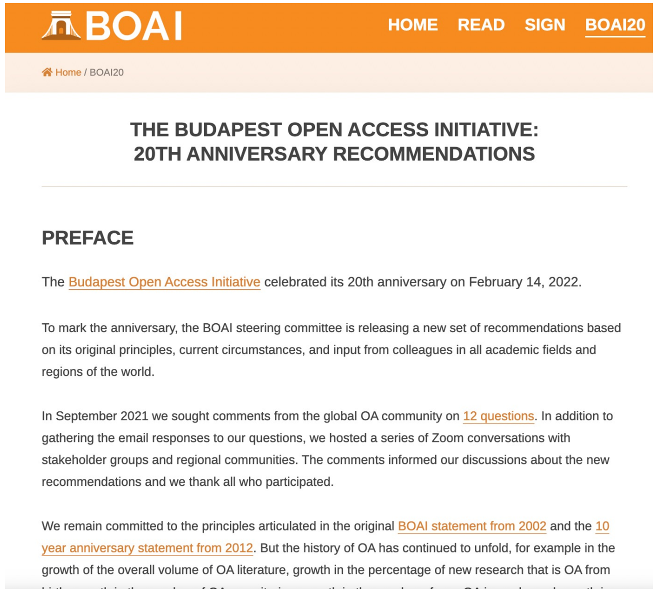
Guidance:

- US federal funders to make all tax-payer funded scholarly research freely and publicly available
- Without embargo
- Machine-readable
- Adequate metadata
- Includes underlying data

THE
GAME
RULES
ARE
CHANGING

PROCEEDINGS OF A WORKSHOP

Developing a Toolkit for Fostering OPEN SCIENCE PRACTICES



THE BUDAPEST OPEN ACCESS INITIATIVE:
20TH ANNIVERSARY RECOMMENDATIONS

PREFACE

The Budapest Open Access Initiative celebrated its 20th anniversary on February 14, 2022.

To mark the anniversary, the BOAI steering committee is releasing a new set of recommendations based on its original principles, current circumstances, and input from colleagues in all academic fields and regions of the world.

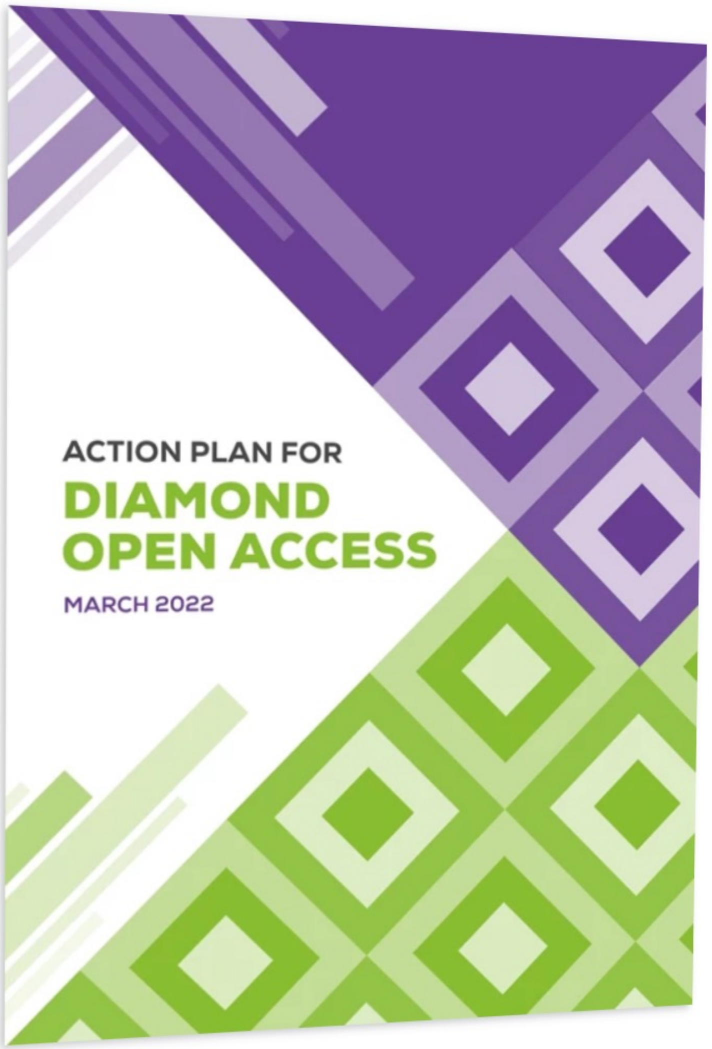
In September 2021 we sought comments from the global OA community on 12 questions. In addition to gathering the email responses to our questions, we hosted a series of Zoom conversations with stakeholder groups and regional communities. The comments informed our discussions about the new recommendations and we thank all who participated.

We remain committed to the principles articulated in the original BOAI statement from 2002 and the 10 year anniversary statement from 2012. But the history of OA has continued to unfold, for example in the growth of the overall volume of OA literature, growth in the percentage of new research that is OA from

unesco
OPEN SCIENCE

UNESCO Recommendation on Open Science

SCIENCE EUROPE



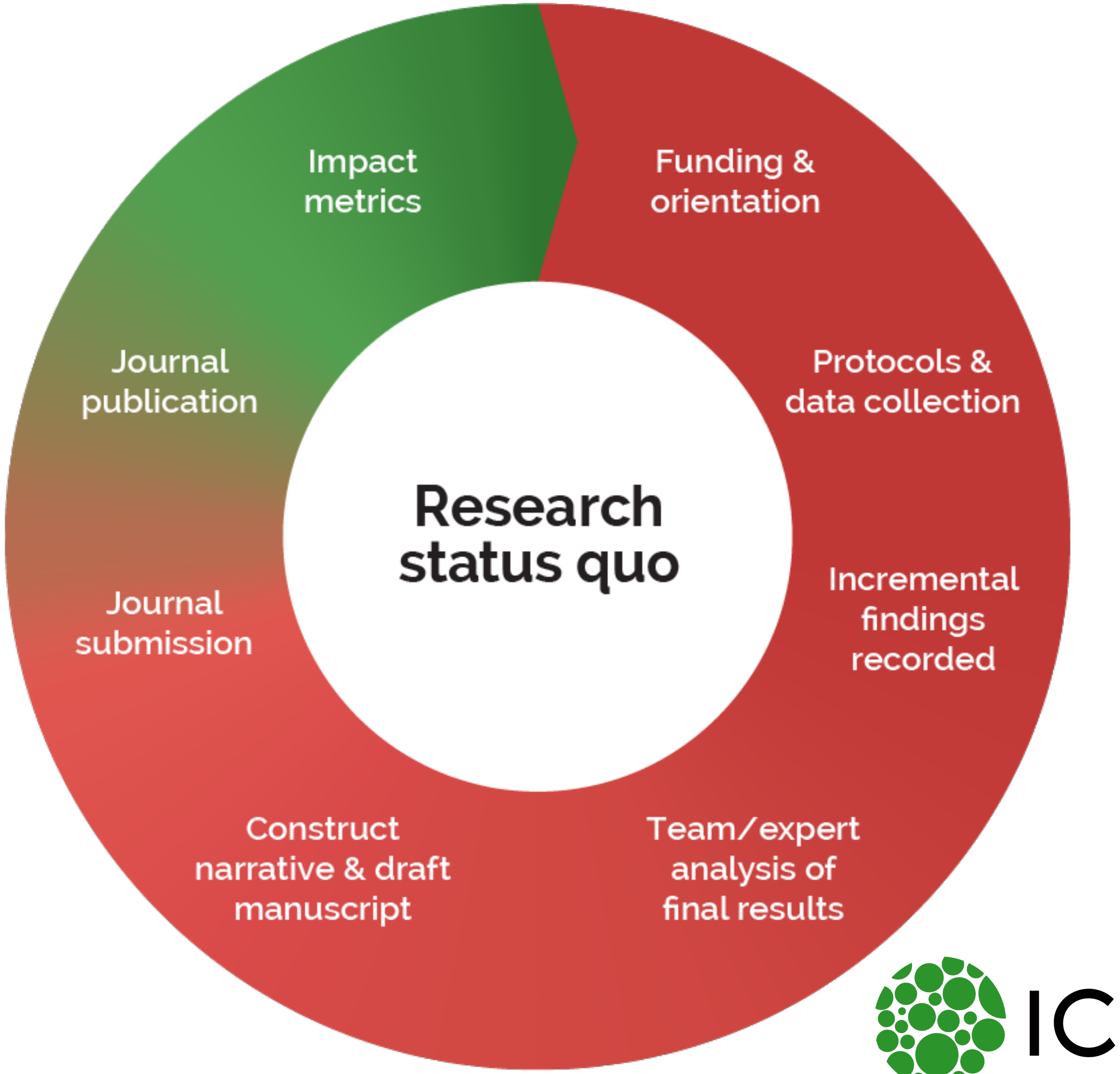
ACTION PLAN FOR DIAMOND OPEN ACCESS

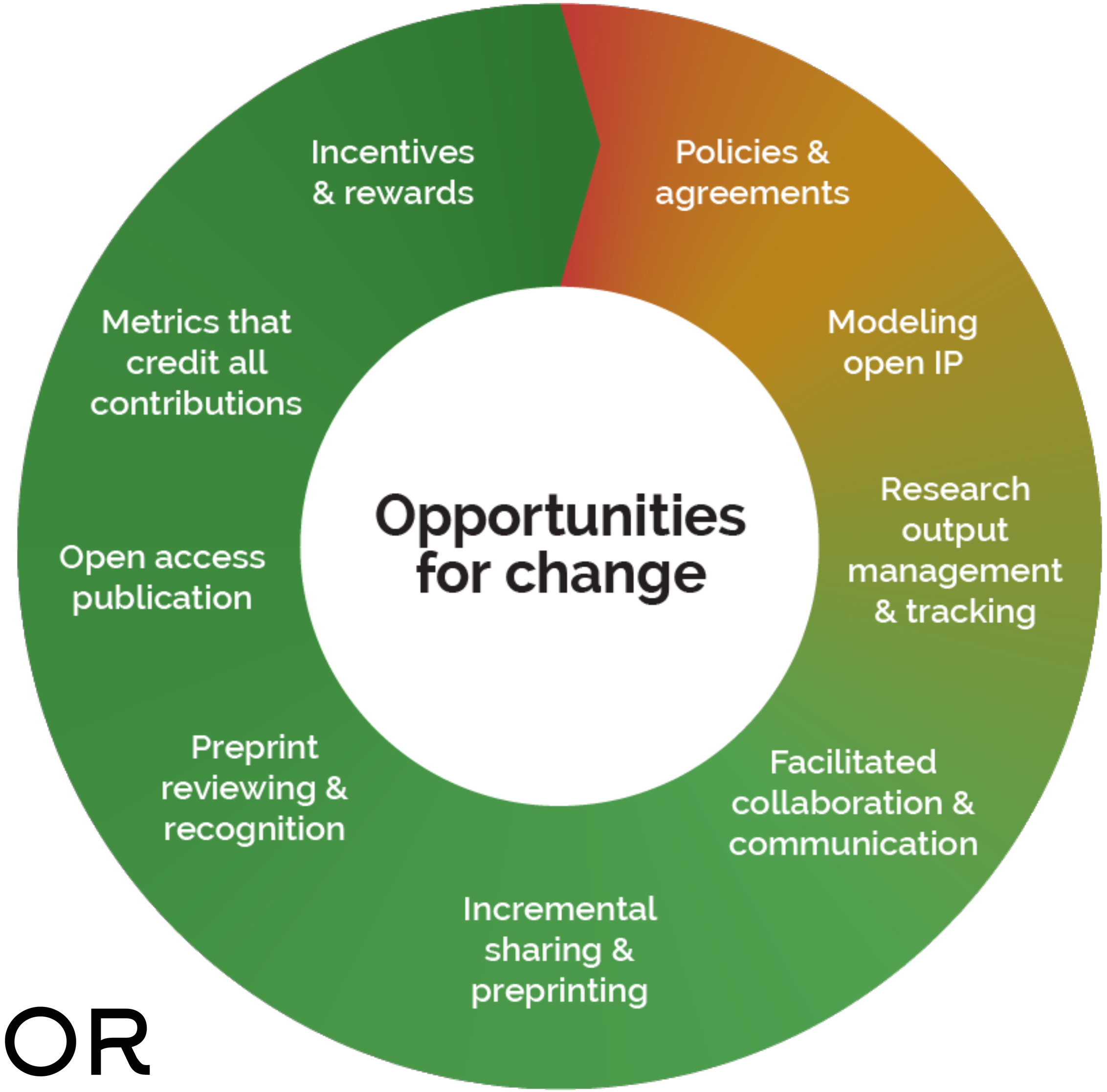
MARCH 2022

Open research initiatives

DORA	Impact measures that are more meaningful than journal impact factor
GO FAIR	Principles for the **F**indability, **A**ccessibility, **I**nteroperability, and **R**euse of digital assets
SPARC*	Panton Principles: data statements, licensing, reuse, and restrictions
Plan S Making full & immediate Open Access a reality	Funder collective initiative for Open Access Journals
ICOR	Building a body of evidence on the impact of collaborative open research
MAKE DATA COUNT	Community-led initiative developing of open research data assessment metrics
NATIONAL ACADEMIES *Sciences Engineering Medicine* HELIOS	Convening critical stakeholders from universities (HELIOS), funding agencies, societies, foundations, and industry to discuss the effectiveness of current incentives for adopting Open Scholarship

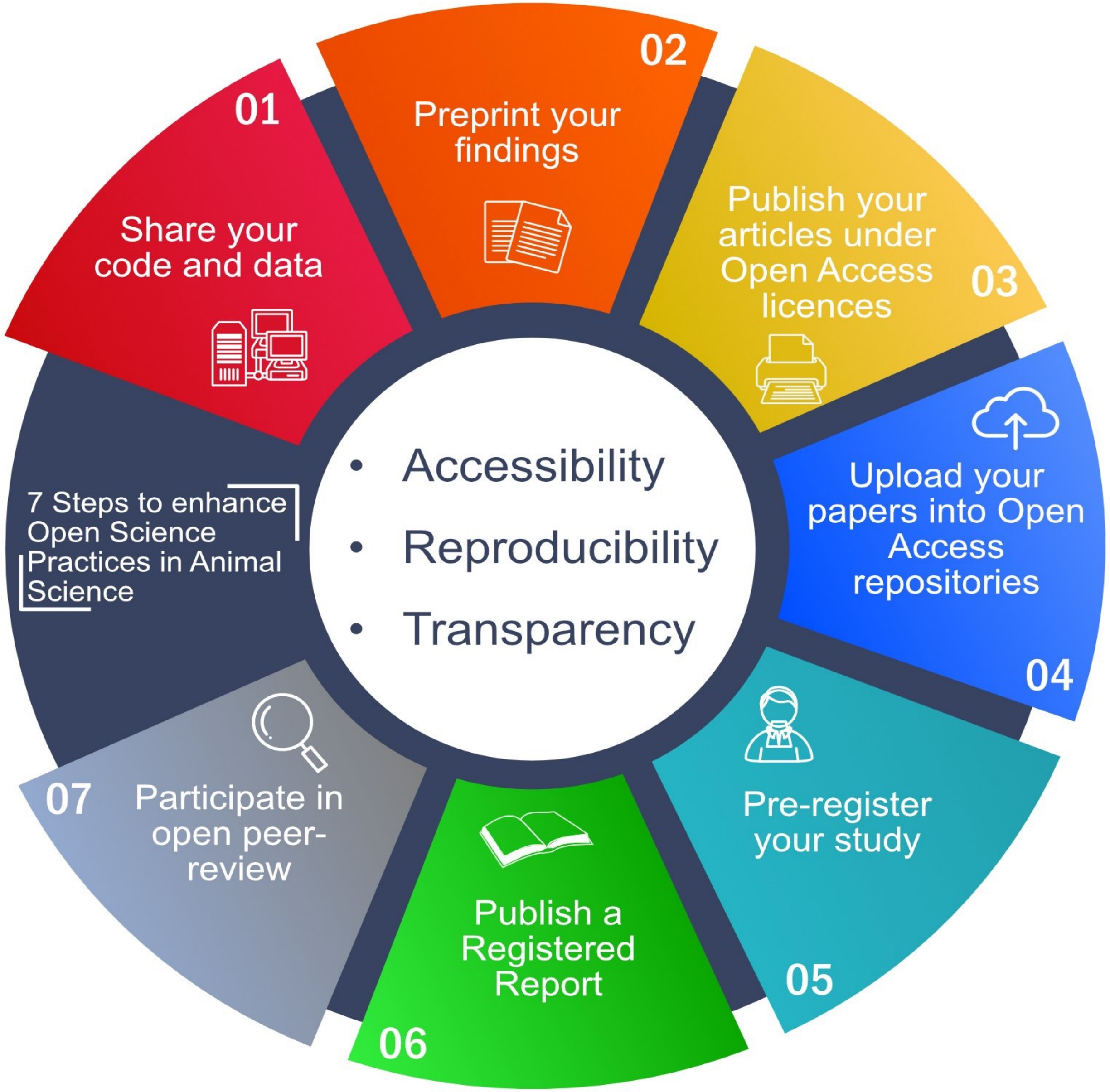
Opportunities for Change


Research status quo
Funding & orientation
Protocols & data collection
Incremental findings recorded
Team/expert analysis of final results
Construct narrative & draft manuscript
Journal submission
Journal publication
Impact metrics


Opportunities for change
Policies & agreements
Modeling open IP
Research output management & tracking
Facilitated collaboration & communication
Incremental sharing & preprinting
Preprint reviewing & recognition
Open access publication
Metrics that credit all contributions
Incentives & rewards

Researcher Perspective

Health Research Alliance



- Accessibility
- Reproducibility
- Transparency

7 Steps to enhance Open Science Practices in Animal Science

01 Share your code and data

02 Preprint your findings

03 Publish your articles under Open Access licences

04 Upload your papers into Open Access repositories

05 Pre-register your study

06 Publish a Registered Report

07 Participate in open peer-review

JOURNAL ARTICLE

Seven steps to enhance Open Science practices in animal science

Rafael Muñoz-Tamayo, Birte L Nielsen, Mohammed Gagaoua, Florence Gondret, E Tobias Krause, Diego P Morgavi, I Anna S Olsson, Matti Pastell, Masoomeh Taghipoor, Luis Tedeschi

PNAS Nexus, Volume 1, Issue 3, July 2022

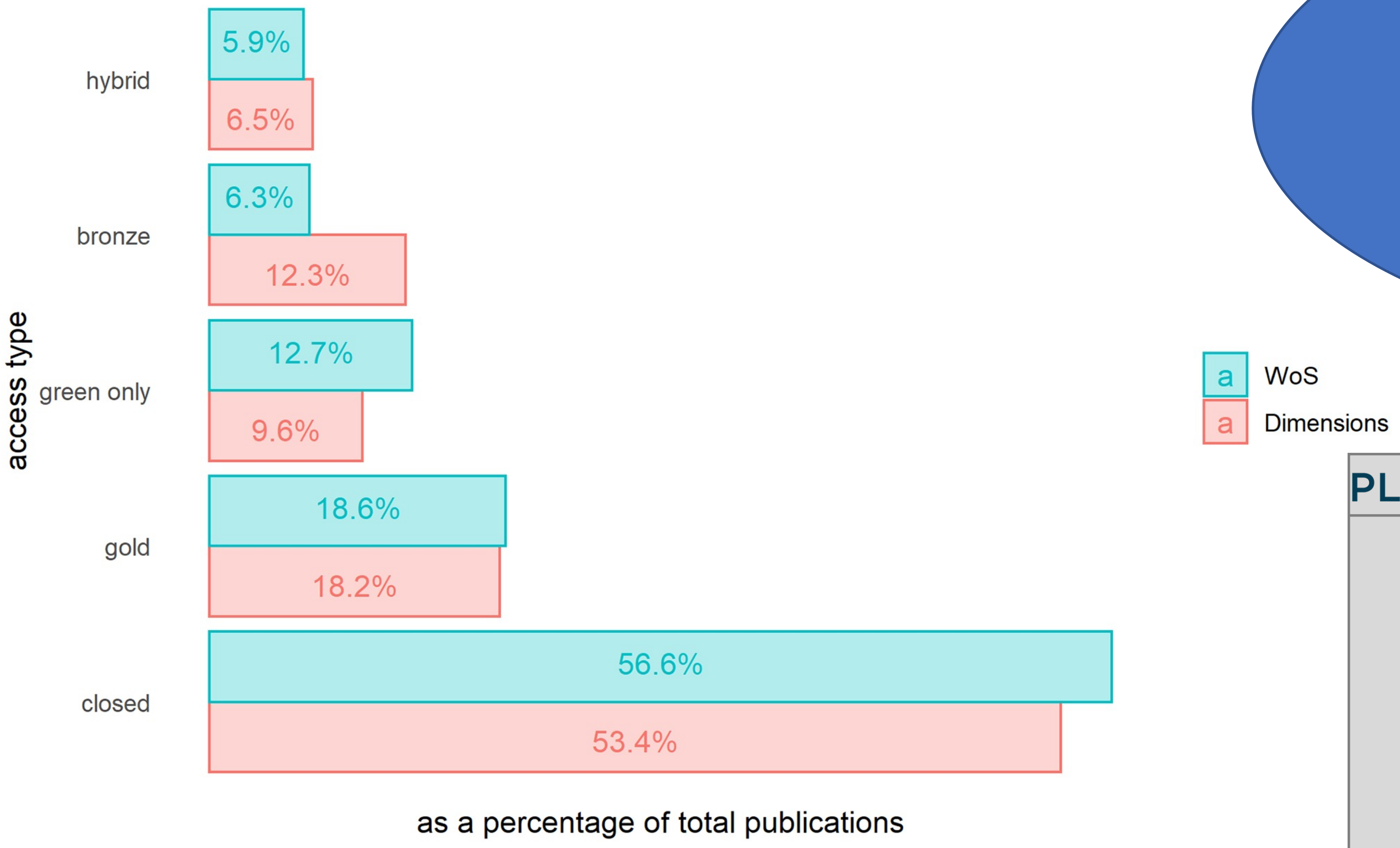
https://doi.org/10.1093/pnasnexus/pgac106

Published: 11 July 2022

Why open science

- Inclusive and equitable
- Fuels collaboration
- Accelerates discovery and outcomes
- Increases reproducibility
- Enables reuse
- Multiplies impact
- Reduces costs
- Ensures persistence and legacy

Open Access – articles, books



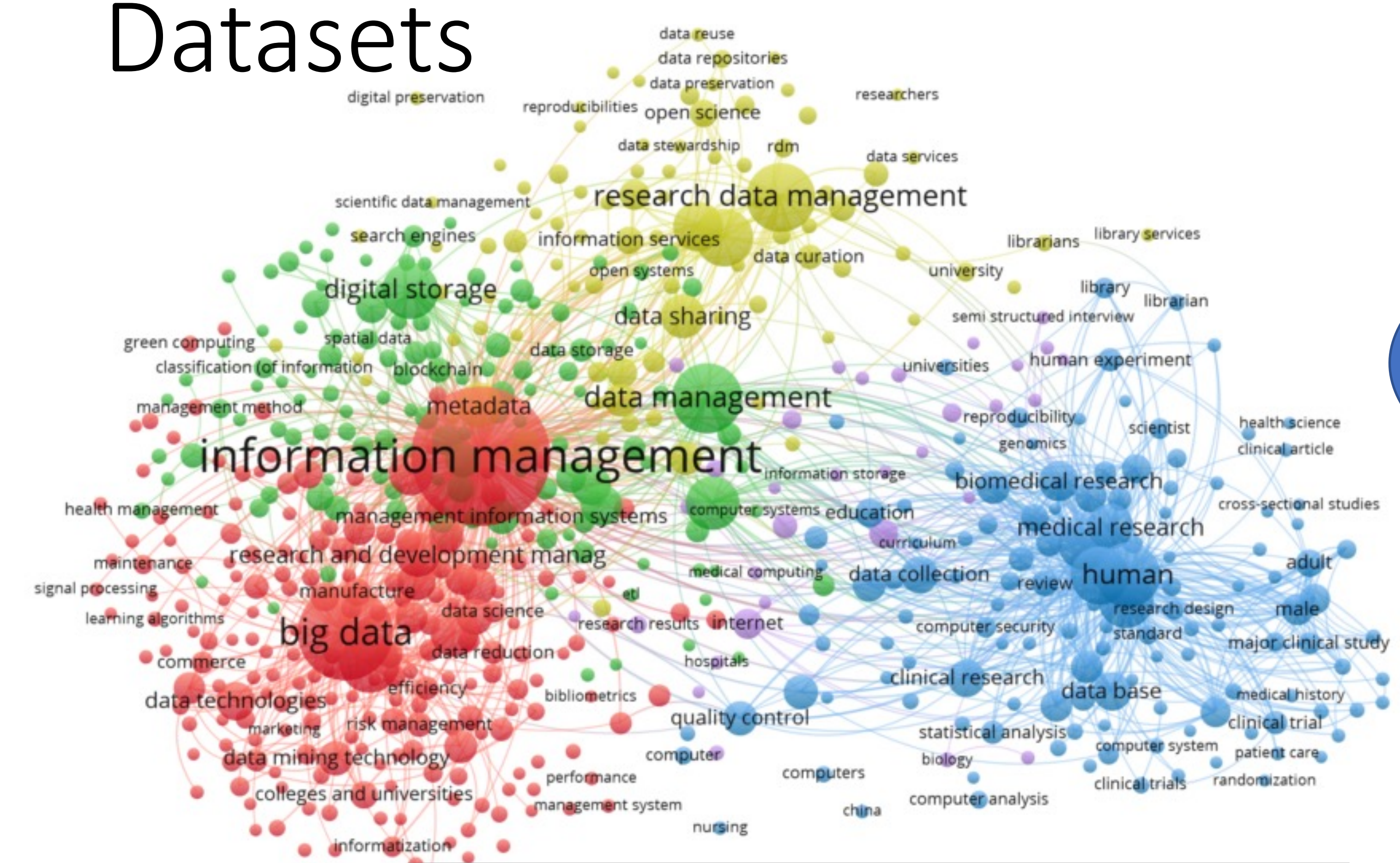
"Studies have provided estimates of the prevalence of OA publications ranging from 27.9% to 53.7%, depending on the data source and period of investigation."

PLOS

The effect of data sources on the measurement of open access: A comparison of Dimensions and the Web of Science

Isabel Basson, Marc-André Simard, Zoé Aubierge Ouangré, Cassidy R. Sugimoto, Vincent Larivière
Published: March 31, 2022
https://doi.org/10.1371/journal.pone.0265545

Datasets


data reuse
data repositories
data preservation
digital preservation
reproducibilities
open science
researchers
data stewardship
rdm
data services
scientific data management
research data management
search engines
information services
librarians
library services
data curation
open systems
university
library
librarian
digital storage
data sharing
semi structured interview
green computing
spatial data
data storage
classification (of information)
blockchain
universities
human experiment
management method
metadata
data management
reproducibility
scientist
health science
genomics
clinical article
information management
information storage
biomedical research
health management
management information systems
computer systems
education
cross-sectional studies
medical research
curriculum
maintenance
research and development manag
adult
signal processing
medical computing
data collection
review
human
manufacture
etl
research design
male
learning algorithms
data science
research results
internet
computer security
standard
big data
major clinical study
commerce
data reduction
hospitals
efficiency
clinical research
data technologies
bibliometrics
data base
medical history
marketing
risk management
quality control
clinical trial
statistical analysis
data mining technology
computer
biology
computer system
patient care
performance
computers
colleges and universities
clinical trials
randomization
management system
china
computer analysis
nursing
informatization
education
VOSviewer

There are 1657 data repositories in the life sciences alone

JeDEM
eJOURNAL OF eDEMOCRACY & OPEN GOVERNMENT

Open science and the academic profession
Rosanna De Rosa, Biagio Aragona
DOI: https://doi.org/10.29379/jedem.v13i2.661

re3data.org

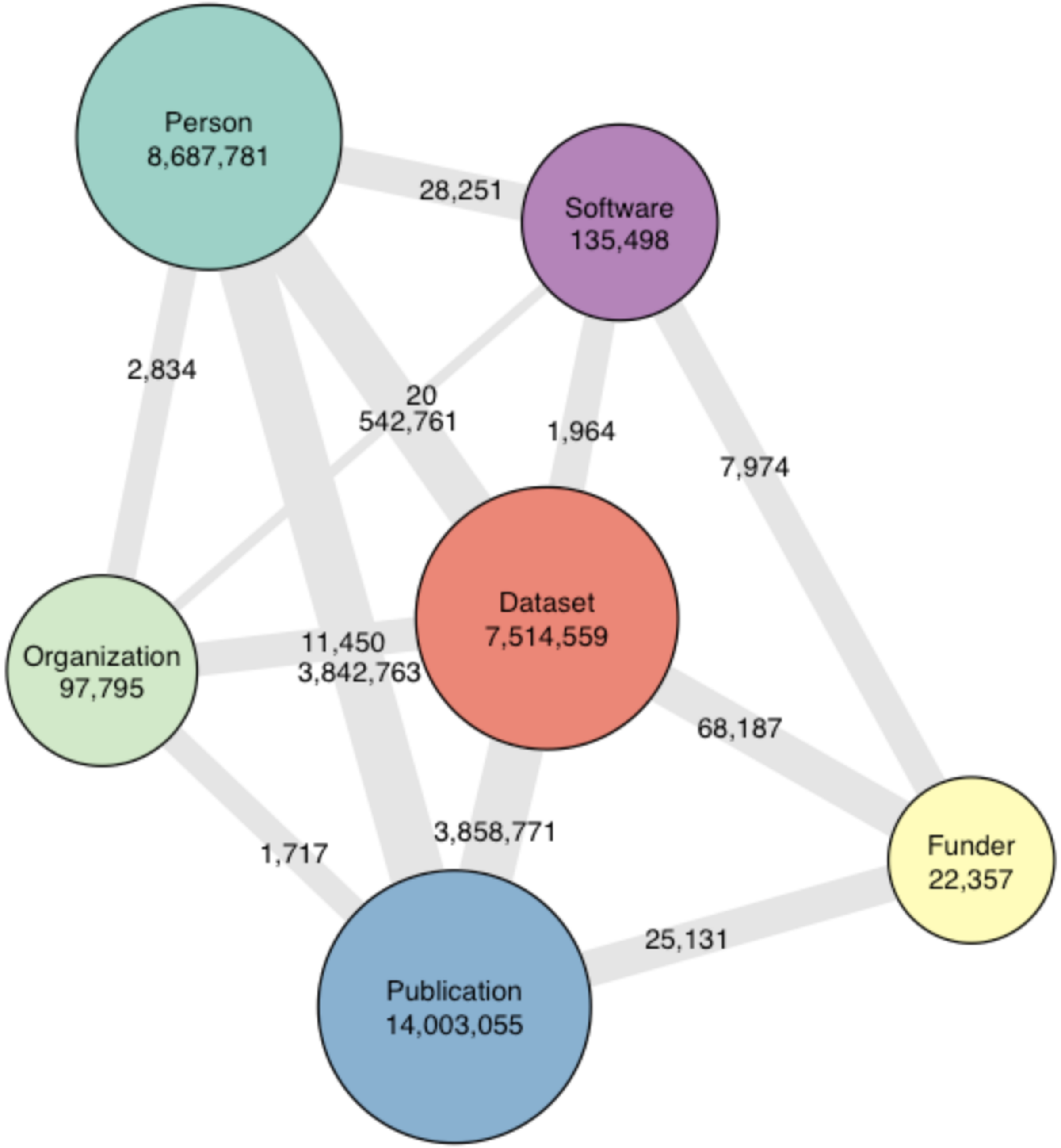
Re3data is a global registry of research data repositories.

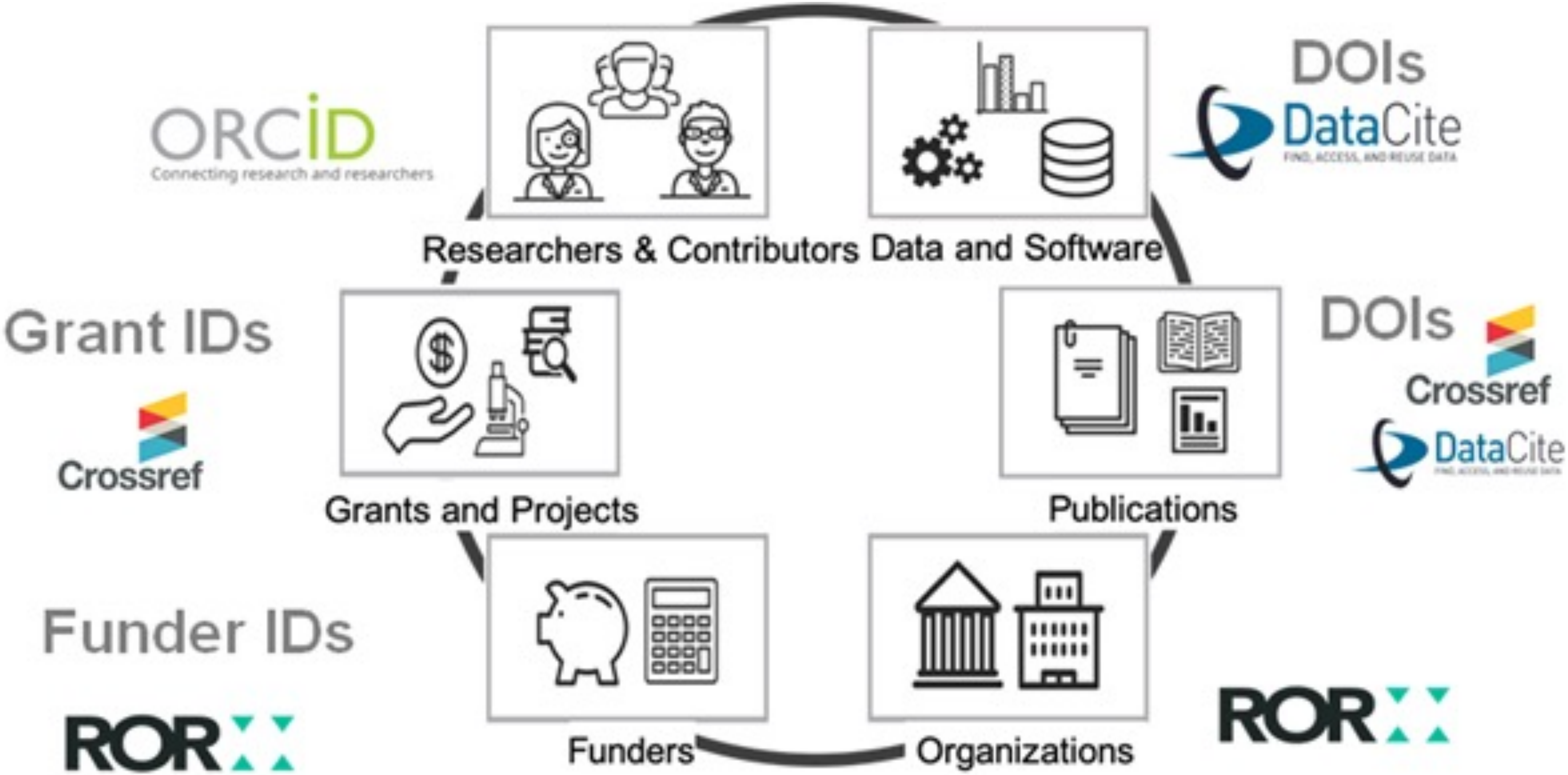
The PID Graph

Networking research

- Persistent identifiers for all people and outputs
- Connecting PIDs to provide maps
- Network of outputs that evolves as the work continues

PID Graph KPI: Number of resources and links in the PID Graph available via GraphQL API as of May 4, 2020. Generated using (Fenner (2019a)).


Person
8,687,781
Software
135,498
28,251
2,834
20
542,761
1,964
7,974
Dataset
7,514,559
Organization
97,795
11,450
3,842,763
68,187
3,858,771
1,717
Funder
22,357
25,131
Publication
14,003,055



ORCID
Connecting research and researchers

Researchers & Contributors

Data and Software

DOIs
DataCite
FIND, ACCESS, AND REUSE DATA

Grant IDs
Crossref

Grants and Projects

Publications

DOIs
Crossref
DataCite
FIND, ACCESS, AND REUSE DATA

Funder IDs
ROR

Funders

Organizations

ROR

Aligning Incentives

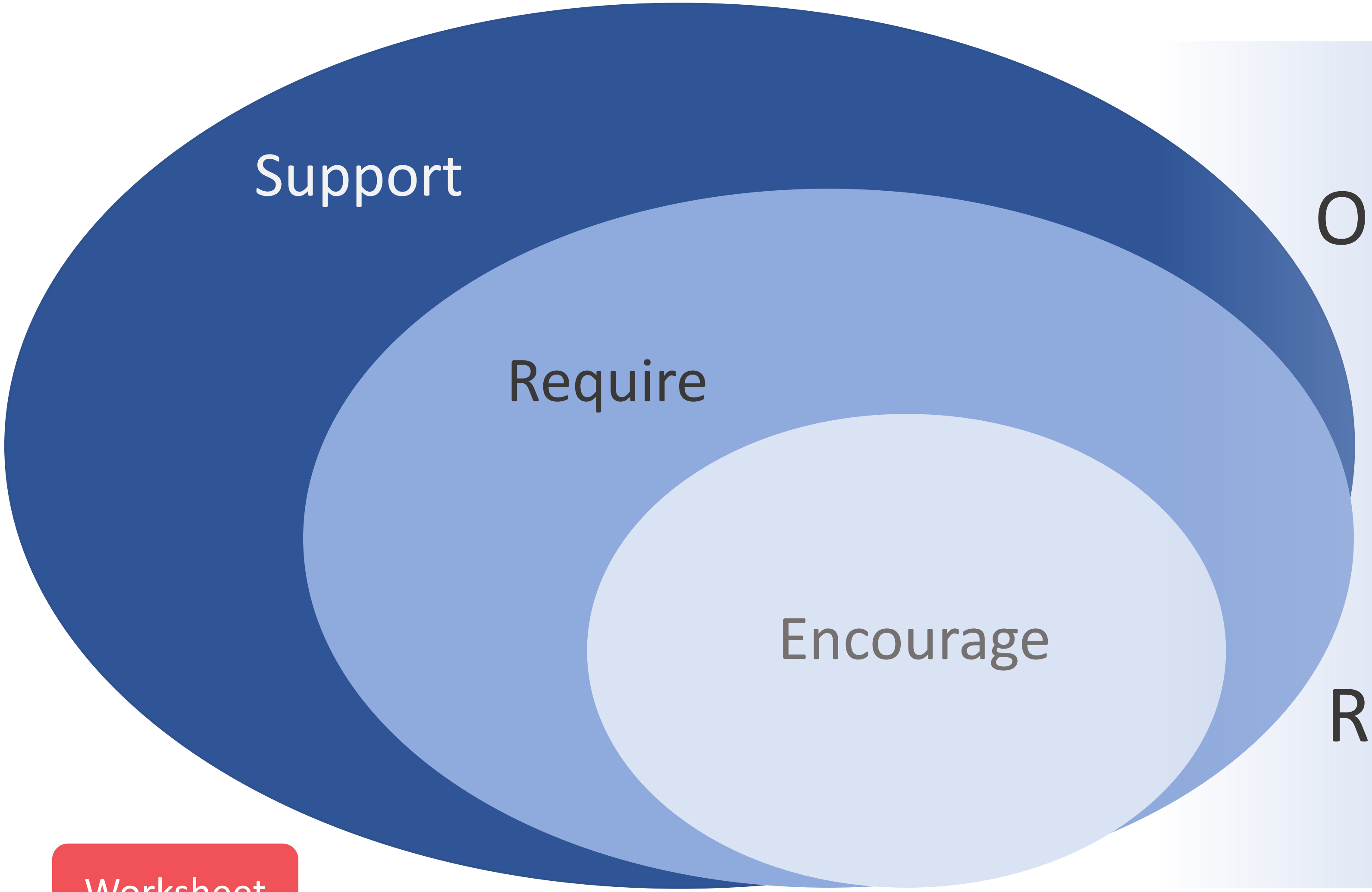
We must incentivize the behaviors we want

Policy and monitoring shifting away from final article and JIF

Organizational Activities:

- NASEM Roundtable Toolkit
- NASEM 3 sectors of stakeholders
- Open Research Funders Group (ORFG)

A menu of options


Support
Require
Encourage

ORCIDs
Open Access Articles
Preregistration
Preprints
Datasets
Code
Resources/materials
Protocols

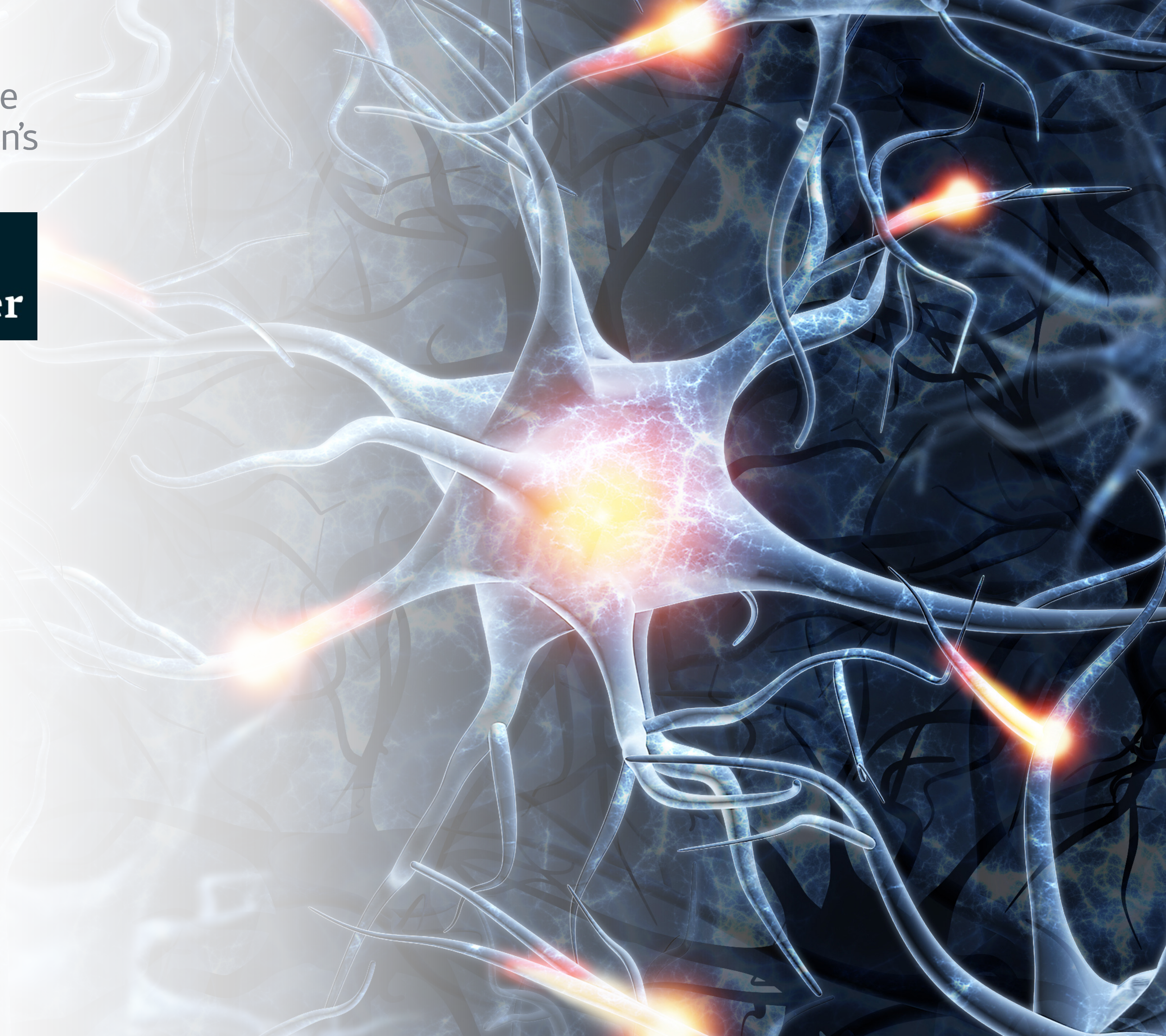
Worksheet

asap Aligning Science Across Parkinson's

Uncovering the roots of Parkinson's disease, together

Open by Design

- PlanS, including CC-BY
- Mandatory preprint
- Open outputs
- Focus on collaboration



Templeton World Charity Foundation, Inc. N WORLD
CHARITY FOUNDATION

Innovations at the heart of human flourishing

Testing Open

- PlanS, including CC-BY
- Preprint encouraged
- Open outputs encouraged
- New program will test open research requirements

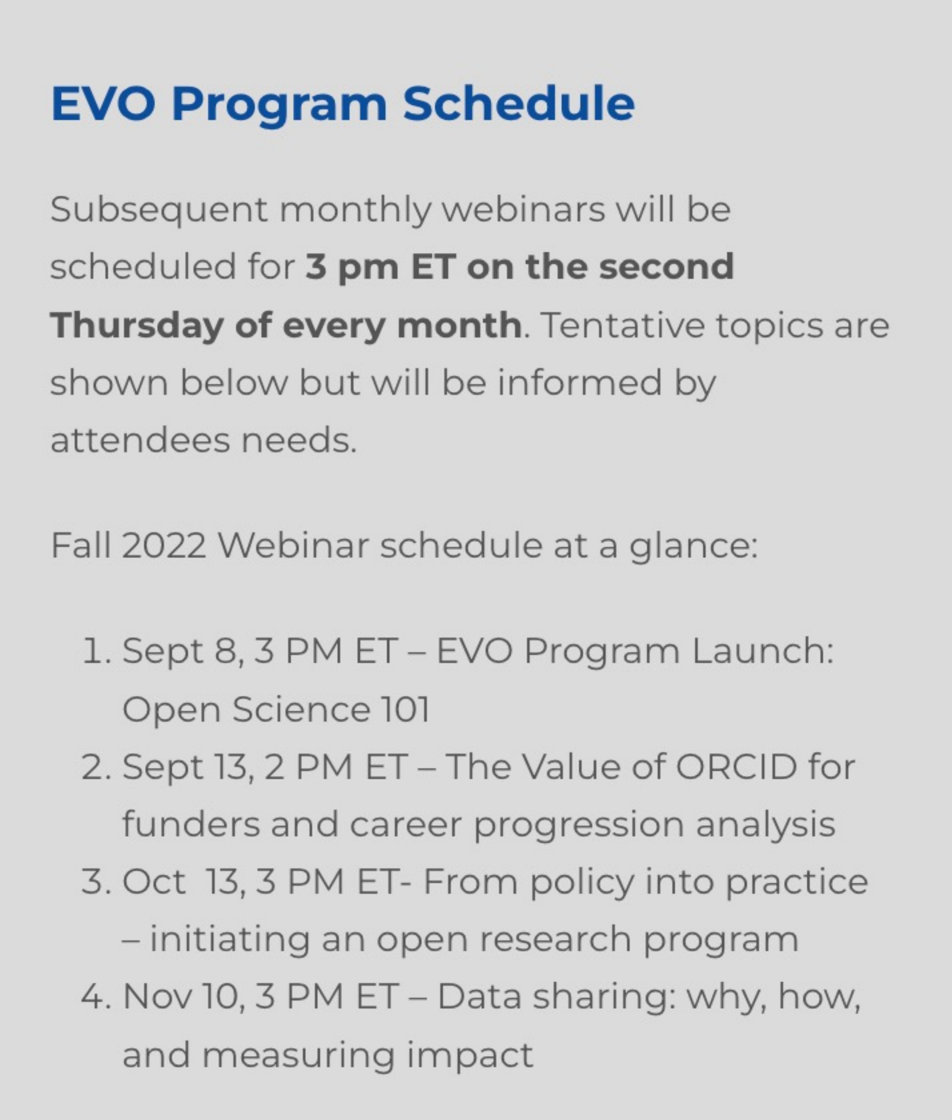
sugar
Guanine
Cytosine
adenine

How are you evolving?

Recommended First Steps:

1. Require ORCIDs
2. Review current polices against the menu
3. Conduct a baseline analysis

What’s coming next in the series



EVO Program Schedule

Subsequent monthly webinars will be scheduled for **3 pm ET on the second Thursday of every month**. Tentative topics are shown below but will be informed by attendees needs.

Fall 2022 Webinar schedule at a glance:

1. Sept 8, 3 PM ET – EVO Program Launch: Open Science 101
2. Sept 13, 2 PM ET – The Value of ORCID for funders and career progression analysis
3. Oct 13, 3 PM ET- From policy into practice – initiating an open research program
4. Nov 10, 3 PM ET – Data sharing: why, how, and measuring impact

Future topics so far:

- Preprints
- Software and Code sharing
- Protocols and tangible resources
- Data Management Plans and grants management systems
- Career progression (see Value of ORCID)
- Compliance and reporting
- Evidence on the impact of open science
- Research Assessment and how it’s evolving

Suggest a topic!

Health Research Alliance

Thank you!

Aligning Science Across Parkinson's

Open Science Blueprint

Sonya Dumanis, PhD
Deputy Director
September 08, 2022

Our mission

Open science is key to realizing our mission!

To accelerate the pace of discovery and inform the path to a cure for Parkinson's disease through collaboration, research-enabling resources, and data sharing.

asap Aligning Science Across Parkinson's

What does Open Science mean?

“A new approach to the scientific process based on **cooperative work** and new ways of diffusing knowledge by **using digital technologies** and new **collaborative tools**”

European Commission, 2016b:33

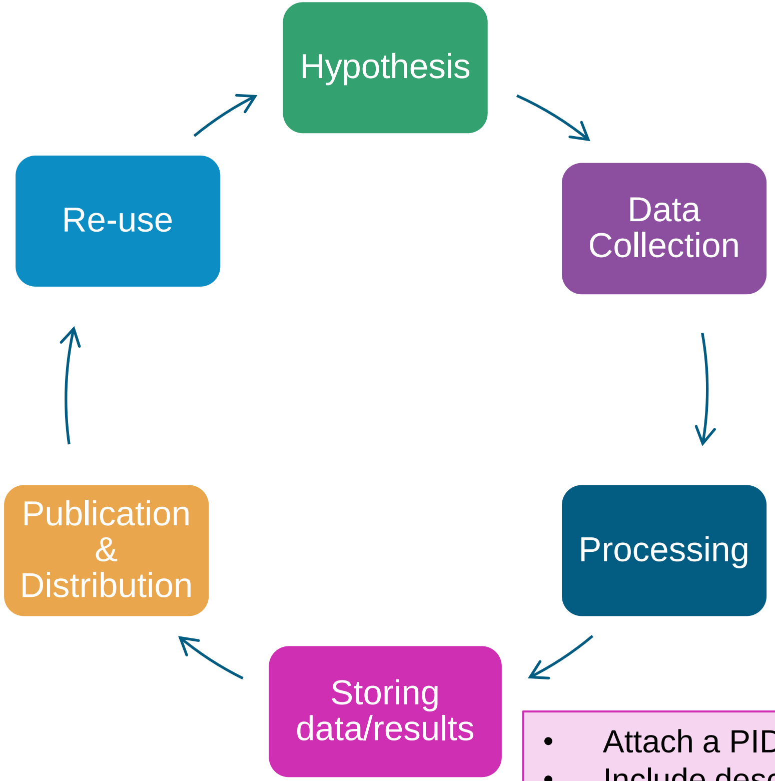
Rationale for Open Science

Facilitating collaborations, research enabling resources and data sharing will accelerate discovery and improve outcomes

Open science fuels collaboration as research outputs are publicly shared early and often

Funder investments should establishing a legacy of work for future research endeavors

Open Science in Practice



- Clear citations
- Ensure accumulation of credit

Hypothesis

Data Collection

- Clarify usage rights

Processing

- Use open-source software & interfaces

Storing data/results

- Attach a PID
- Include descriptive metadata (using standards for your field)

Publication & Distribution

- Publish article as open access
- Ensure links between publications, data, code, and methods
- Use publicly available repositories
- Publish metadata with an open license

Re-use

*adapted from Foster Open Science Handbook

asap Aligning Science Across Parkinson's

Key considerations in implementing open science for an initiative

Grantee Selection

- **Messaging:** ASAP announcements and publications described it as a collaborative open research initiative from the onset

- **Screening:** Grantees were screened during the pre-proposal stage for a history of collaborating

- **Prior History:** Pre-proposal applications required demonstration of open access publishing and history of sharing datasets, codes, and/or protocols

Educating Grantees

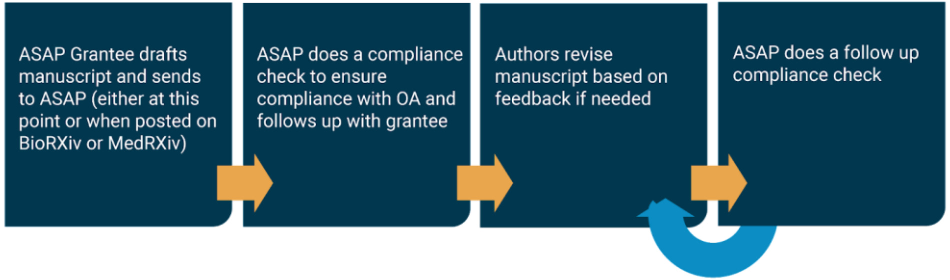
- **Onboarding process** where team leads were instructed on the open science policies and expectations as part of their welcome to the network.

- **Project managers** received additional training to become ASAP ambassadors, educating their team on policy, the importance of collaborative open research and assist with data curation.

- **Detailed Guidelines** are available and are updated regularly

Providing support

1. Manuscripts posted in an OA preprint repository upon submission to a journal for review (or sooner).
2. Immediate free online access upon publication with grantees retaining copyright via CC BY 4.0 license (or equivalent) for unrestricted reuse.
3. All research outputs (data, protocols, code) deposited in publicly accessible repositories and cited in the publication with their permanent identifier.
4. Appropriate attributions to ASAP funded work.
5. Utilizing our Research Output Management System (ROMS) to track research outputs within the ASAP virtual grantee platform known as the ASAP Hub.



ASAP Grantee drafts manuscript and sends to ASAP (either at this point or when posted on BioRXiv or MedRXiv)

ASAP does a compliance check to ensure compliance with OA and follows up with grantee

Authors revise manuscript based on feedback if needed

ASAP does a follow up compliance check

- OA.Works used to help discover ASAP preprints/publications
- Dataseer.Ai used to autogenerate open science assessment reports
  - Invested in automating this process so that the cost goes does for future funders
  - Goal is to create an open source tool chain
- As of 09/2022 – have completed 191 compliance reports.

https://parkinsonsroadmap.org/open-access-policy/

Providing collaborative tools

ASAP supports digital tools for teams if they would like to take advantage of the service

Protocols.io for protocols
(70% of teams)

Zenodo for datasets and code

(40% of teams)

Google Drive private and secure (80% of teams)

Slack for group chat and discussion

(40% of teams)

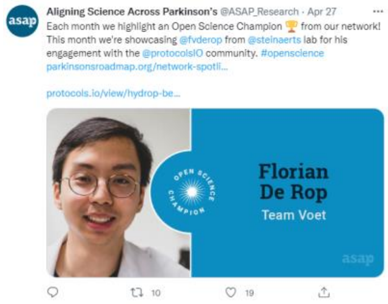
Zoom for video conferencing
(49% of teams)

Custom platform to facilitate collaboration and data sharing

Incentivizing open and collaborative research

- **ASAP acknowledges collaboration** throughout the life cycle of a grant with this information formally collated through mid-year and annual progress reports.
  - We ask for names of those outside of the team that have been instrumental as part of the reporting updates

- **Open Science Champions** are called out and recognized through social media & our biweekly newsletters

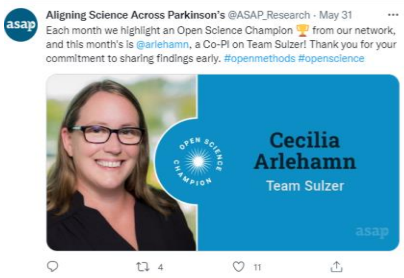


Aligning Science Across Parkinson's @ASAP_Research · Apr 27

Each month we highlight an Open Science Champion 🏆 from our network! This month we're showcasing @fvderop from @steinaerts lab for his engagement with the @protocolsIO community. #openscience parkinsonsroadmap.org/network-spotli...

protocols.io/view/hydrop-be...

asap
OPEN SCIENCE CHAMPION
Florian De Rop
Team Voet
asap
10
19



Aligning Science Across Parkinson's @ASAP_Research · May 31

Each month we highlight an Open Science Champion 🏆 from our network, and this month's is @arlehamn, a Co-PI on Team Sulzer! Thank you for your commitment to sharing findings early. #openmethods #openscience

asap
OPEN SCIENCE CHAMPION
Cecilia Arlehamn
Team Sulzer
asap
4
11

Lessons learned

- There is a large gap between wanting to do open science and knowing how to do open science.
  - Invested in training resources
  - Hosting monthly meetings with project managers
  - Using preprint as the training step for how the article can be improved

- There are no great compliance tool chains
  - Invested in automating compliance checking (scaled from 8 hours per report to 2.5 hours through automation)
  - Takes trained staff 20 minutes to generate the email based off report

- The open science ecosystem is rapidly evolving so ASAP must continuously adapt its requirements.

How will ASAP continue to contribute?

- Publishing Blueprint and sharing our templates
- Investing in scalable open-source approaches to enable compliance monitoring
- Further research into the costs of open research
- Partnering with our peers – there is power in numbers!

asap Aligning Science Across Parkinson's

Any Questions?

sdumanis@parkinsonsroadmap.org

TWCF’s Phased Approach to open research policies

TEMPLETON WORLD
CHARITY FOUNDATION

Nudges

To applicants	To grantees	To external reviewers
TWCF values the open sharing of research outputs. If applicable, describe 1) instances where you have engaged in "open" activities (such as making articles open access and sharing data/code according to FAIR principles), 2) examples of how your open research outputs have been used by others in your discipline, in other disciplines, and/or outside of academia (include DOIs if possible), and 3) plans to engage in open activities in the future.	**TWCF values the open sharing of research outputs**. If applicable, describe 1) instances where you have engaged in "open" activities (such as making articles open access and sharing data/code according to FAIR principles), 2) examples of how your open research outputs have been used by others in your discipline, in other disciplines, and/or outside of academia (include DOIs if possible), and 3) plans to engage in open activities in the future.	Please note, we encourage reviewers to **consider all valuable research outputs** including preregistration documents, peer-reviewed publications and preprints, datasets, code, software, protocols, and research materials.

Open Access Policy launched in 2021

	Require	Encourage	Neither require or encourage
Share Articles	✔		
Preregister Research			✔
Share Preprints			✔
Share Datasets		✔	
Share Code & Software		✔	
Share Protocols			✔
Share Research Resources			✔

Open Research Policy & Recommendations

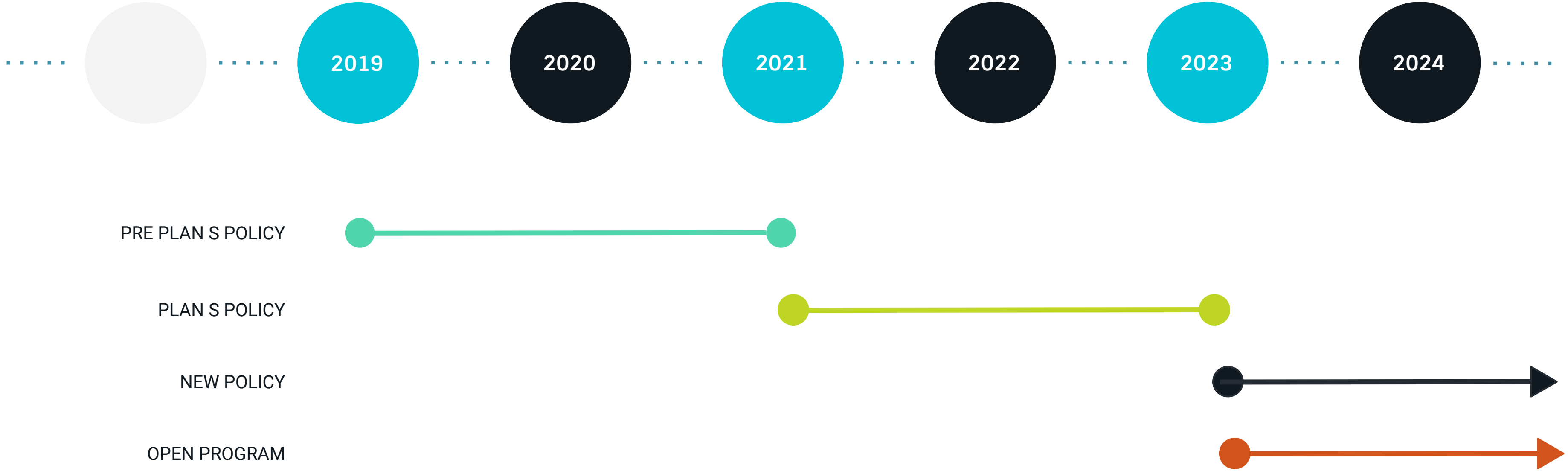
	Require	Encourage	Neither require or encourage
Share Articles	✔		
Preregister Research		✔	
Share Preprints		✔	
Share Datasets		✔	
Share Code & Software		✔	
Share Protocols		✔	
Share Research Resources		✔	

Experimenting with a Program

	Require	Encourage	Neither require or encourage
Share Articles	✔		
Preregister Research	✔		
Share Preprints		✔	
Share Datasets	✔		
Share Code & Software	✔		
Share Protocols	✔		
Share Research Resources		✔	

ICOR

Dipping our toes into monitoring – Creating a Baseline to Review Changes



2019

2020

2021

2022

2023

2024

PRE PLAN S POLICY

PLAN S POLICY

NEW POLICY

OPEN PROGRAM