

## **MBW – PhD Event Spring 2019**

### **The Road To OPSIN - OPen ScieNce**

**Come see what it's all about!**

**Friday - May 3<sup>rd</sup> - 13:00 - Vivi Täckholm (Q211)**

**kl 13-15 Lectures + panel discussion**

**Learn all about Open Science  
from experts**

**ALL ARE WELCOME!**

**kl 15-17 Group discussions + presentations**

**Discuss relatable topics with peers  
(MBW PhD students only)**



**open science**

Open Science Logo G.emmerich  
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# Schedule

13.00	Sofie Wennström	Stockholm University Library	Open Science, Open Access Publishing
13.15	Niclas Jareborg	National Bioinformatics Infrastructure Sweden	Open Data, Open Source
13.30	Gustav Nilsson	Karolinska Institute	Open Methodology, Reproducible Research
13.45	Anna Wetterbom	Young Academy of Sweden	Policy of Open Science
14.05	Panel Discussion		
15.00	Group Discussions + Presentations		
16.30	Wilhelm Widmark	SU Library	Open Science Efforts at SU



# Open Access Publishing in a Nutshell

Sofie Wennström

Stockholm University Library

sofie.wennstrom@su.se

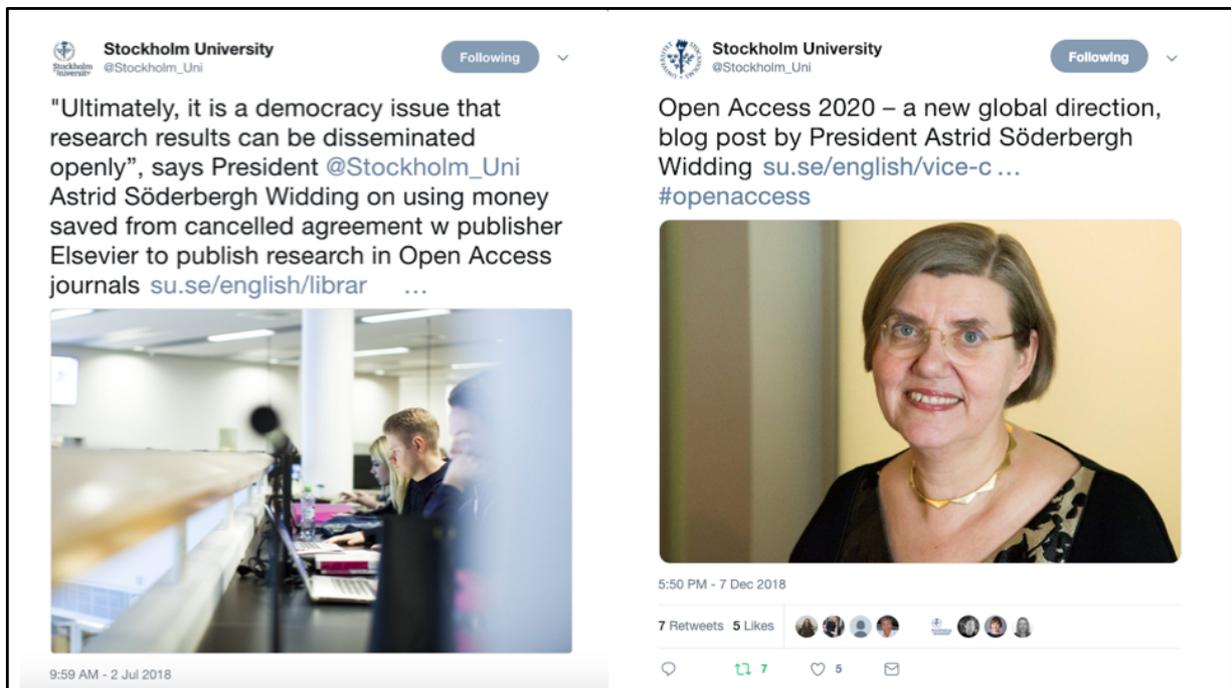
@SofieWennstrom

*MBW PhD Event, May 3<sup>rd</sup>, 2019, Stockholm, Sweden*



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Emoticons used throughout the presentation are from Twemoji, via a CC BY 4.0 license. More info: <https://github.com/twitter/twemoji>

Sofie – Analyst, working with OA strategies, teaching (national investigation etc.) and publications (Stockholm University Press)



Stockholm University position on Open Access

Read more:

<https://www.su.se/english/library/publish/open-access>

<https://www.su.se/english/vice-chancellors-blog/open-access-2020-a-new-global-direction-1.416578>

"It was only now that many realised – and also pointed out with the greatest clarity– that Plan S was in no way intended to restrict researchers' publication opportunities, but rather that it was intended solely to exert pressure on the publishers to comply with the needs of researchers, in order to achieve the overall and universally common goal, i.e. open access to scientific publications. This is absolutely essential if we are to achieve our shared objective."



## Goals for the Future of EU OA Publishing

- Creative commons-licensing to preserve author rights
- Update electronic platforms and formats to allow TDM
- No embargo times & aim for 100% OA
- Make everything findable via EOSC



- Also include putting copies in repositories with proper licensing, works with both version of record or author's version
- Who is responsible for what change?
  - The research community - with decisions on where to publish & editorial activity
  - Universities & libraries - read & publish agreements & managing cash flows & evaluation methods (DORA)
  - Research funders - support & require OA publishing
- TDM – means Text and Data Mining – to address the constant increase of academic information & make future research putput findable/searchable
- Transformative agreements means contracts that are negotiated to eventually flip journals to full OA
- Embargo times are already a problem
- Change the market to become more 'customer friendly' instead of just following the lead of the 'big five' publishers

# OPEN ACCESS

## Ongoing Work



- EU Framework
  - Digital Single Market Strategy
  - Open Access Policy (since 2010)
  - European Open Science Cloud
- The Swedish Research Proposition
  - All Swedish & government funded research open by 2026
- Swedish National Library working with Open Access to publications
  - Investigations published in March 2019
- Swedish Research Council working with framework for Open Data
  - Currently creating policies & infrastructures

- <https://ec.europa.eu/digital-single-market/en>
- <https://ec.europa.eu/digital-single-market/en/open-access-scientific-information>
- The Swedish Research Council have recommended that all state funded research (i.e. All work at unis or paid for by state funders) should be published with an Open Access licence, preferably via Gold OA rout, for journal articles and by 2020 and for books and research data by 2026.
- <http://www.vr.se/omvetenskapsradet/regeringsuppdrag/avrappporterade2015/avrappporterade2015/nationellariktlinjerforoppentillgangtillvetenskapliginformation.4.7e727b6e141e9ed702b1307e.htm>
- New guidelines
- This follows the lead of the EU directive about Open Access to research results funded by them, called Horizon 2020, where they also aim for full OA for all funded research by 2020, with a lot of investments currently being made into digital infrastructures to support the mandate.  
<http://ec.europa.eu/research/openscience/index.cfm>
- Imc src: Wikimedia commons, Open Access logo, originally created by the Public Library of Science (PLOS). [https://commons.wikimedia.org/wiki/Open\\_Access](https://commons.wikimedia.org/wiki/Open_Access)



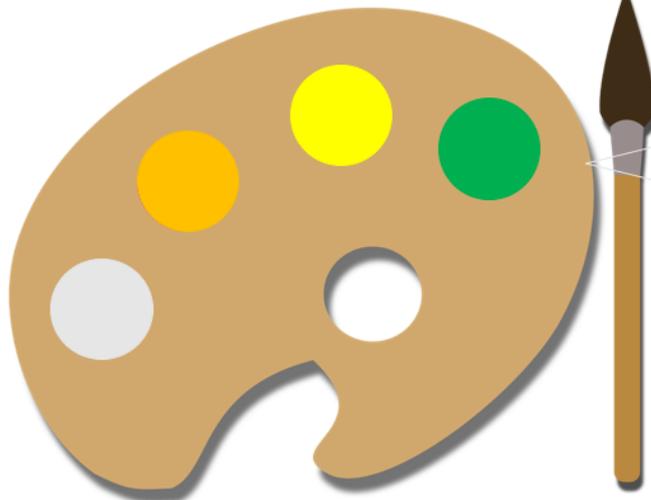
## What is Plan S?

- Research funders' action plan to make their funded output available
- An initiative aiming to push publishers to change
- To address rapidly increasing publishing costs
- Encouraging technical developments & best practice



- It's a "work in progress" from the research funders' perspective
- Focus on Journal articles, but books are mentioned as a future project
- Connected to students' use of research material - should be able to continue learning after graduation – lifelong learning
- ... and citizen science
- Stakeholders coming together – but not enough for the time being – has, however, lead to high-level meetings between stakeholders

# The OA Palette



**Green**

**Hybrid**

**Gold**

**Other**

Img: from Good Free Photos, CC0/Public domain <https://www.goodfreephotos.com/vector-images/final1955.png.php>

What types of open publishing are we talking about when we mention the different colours of Open Access? The colours are mainly used for distinguishing different costing/payment models related to journal articles (but could include other material as well). Such payments have been introduced by publishers to ensure cost coverage for producing articles.

Green open access refers to when you upload a pre-print or a post-print of your article in manuscript format in an open database. DIVA is one example of a database for Green OA.

Green:

+ Own control of platform  
Working with the current publishing system  
No charges for authors

-

Cost effective?  
Extra admin for researchers & libraries  
Embargo times

Hybrid OA mean that you choose to publish one article open in an otherwise closed journal. You normally pay a one-time fee. Average price per article for SU researchers is EUR 2300.

Hybrid

+ Working with the current system  
Authors choose journal & audience  
Established platforms & practices

-

Not moving the system forward  
Increasing costs to pay for both publish & read  
Publishers control the market

Gold OA means that you are paying a (small or large depending on the publisher) fee called Author Processing Charge (APC or BPC for books), while Green OA refers to free parallel publishing (or self archiving) of manuscript versions of papers or chapters.

Gold

+ Immediately OA  
Affordable  
Possibility to change the market

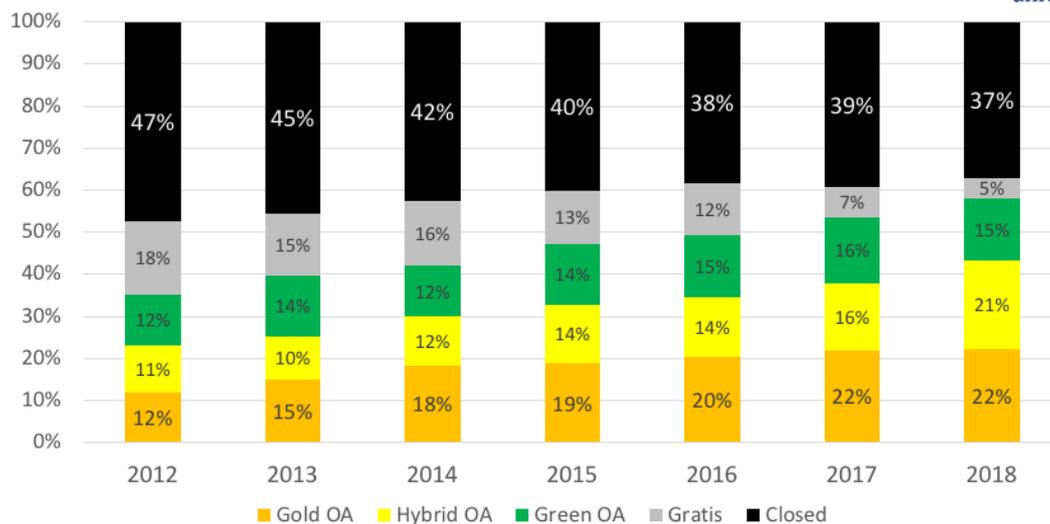
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Lower tier or no status journals  
Predatory journals cluttering the market  
Old journals may have to close

There are more models out there, depending on the context. This is a problem connected to how different stakeholders approach the idea of creating new business models adapted to open science.

Other models? Grey | Brown | Black | Diamond | etc. – are they just adding to the confusion? What will the future bring in terms of vocabulary and policies to ensure that publishers can continue to charge for services?

## Access to Published Articles 2012–2018



- Data collected from published articles registered in the SU repository DiVA, enriched with data from databases holding information about open licensing status.
- Average publishing rate of articles per year: ca. 3,000 (from a total of 4,000 published items)
- Hybrid publications – open in journals where authors select to publish OA, but where other content is behind paywall
- Gold publications – the entire journal is immediately open access, and charges no fees for reading content
- Clear trend – OA is increasing – Agreements with publishers of hybrid journals are making a difference
- Closed access on slow decrease – and this is what Plan S is trying to change
- From a total of 24% OA in 2012 to 43% in 2018 (including both Gold and Hybrid)
- But, considering the goal of the Swedish Research bill (from 2016);
  - All scientific publications resulting from research financed with public funds shall be published immediately open access
  - The transition shall be fully realized within 10 years, 2026
- ... we are far from there yet
- Need to improve services and opportunities to reach the goal of 100% OA 20206



## Financial support for publishing fees

- Institutional deals with publishers
  - APCs prepaid/invoiced directly to the library
- Library fund for publishing in full OA journals
  - Eligible authors to contact [openaccess@su.se](mailto:openaccess@su.se)

## Current OA Agreements

- **All APCs prepaid/invoiced directly to the library**
- **OA Publishers**
  - PLOS, Copernicus, Frontiers, MDPI
- **National consortia agreements (Bibsam)**
  - Cambridge University Press, De Gruyter, IOP, Royal Society of Chemistry, Springer, Taylor & Francis, Oxford University Press
- Read more: <https://www.su.se/library/apc>



- National agreements with aim to support researchers with less administration (no invoices) and to support full (Gold) OA publishers, increase OA
- Priority for agreements where authors publish the most (based on bibliometric evidence).
- Local agreements with some OA publishers to complement the offer for authors
- National – hybrid, legacy publishers. Cost effective, less admin
- All agreements: library verifies "corresponding author" = SU
- Elsevier = cancelled from July 1st 2018. Talks have been reinstated.
- Looking at adding more contracts with for example Wiley. Follow the Library channels to stay up-to-date

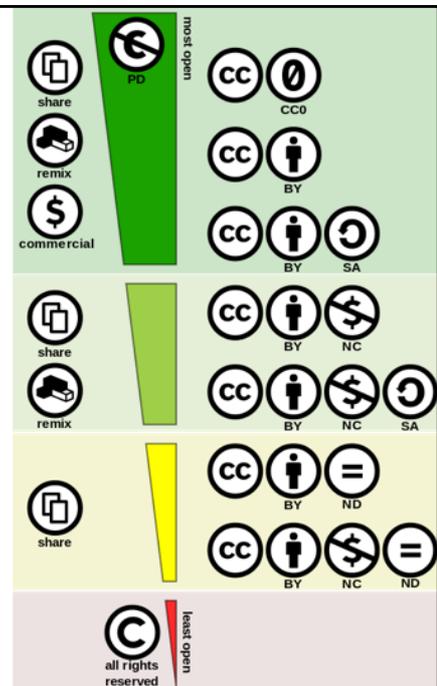


## Summary

- Goal is to balance the market and make research more available
- Recommendation to stop signing contracts to waive your rights
- Make sure that your work is easy to find and trust
- Publish open if you can – contact 'openaccess@su.se' for guidance

# OPEN ACCESS Licensing

- The Author does not sign over the economic rights to a third party
- In order to share
  - with proper recognition (BY)
  - non-commercially (NC)
  - equal Terms, "share alike" (SA)
  - wholly, without amendments, no derivatives (ND)
- See also: <https://vimeo.com/13590841>



<https://creativecommons.org/share-your-work/>

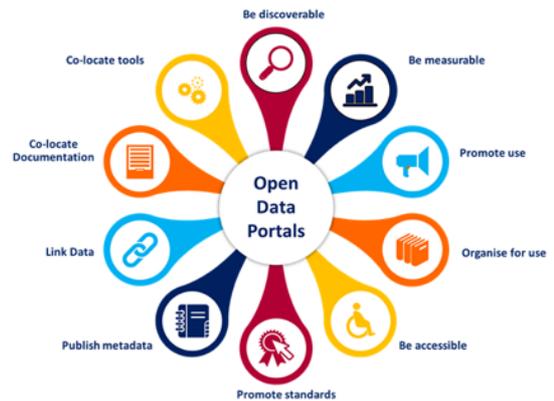
- Licensing practice can be seen on a scale from open to closed, or the other way around.
- The building blocks of the creative commons license codes are made to combine in different levels of openness to ensure that the rights holder can control how the object can be used.
- The author can never lose their intellectual right, but can choose to sign a contract where somebody else manages the economic right to the object (i.e. like the contracts traditional publishers require authors to sign when publishing their articles.)
- An open license does not replace the copyright, but allow for the rights holder to share objects online with intrinsic instructions on how it can be used or redistributed
- Open licensing is meant to reduce administrative workload and facilitate sharing online

## Research Data Policy

*'Stockholm University advocates making its research and research findings accessible through a research and study environment that facilitates, encourages and provides information on the practice of open science.'*

Stockholm University Research Data Policy  
Dnr SU FV 5.1.1-1780-17, 2018-03-01

<https://www.su.se/rules/book-2/education-at-phd-level-research/research-data-policy-1.387809?cache=%252525252525252F2.20372%2Fstudent-services%2F2.1380>

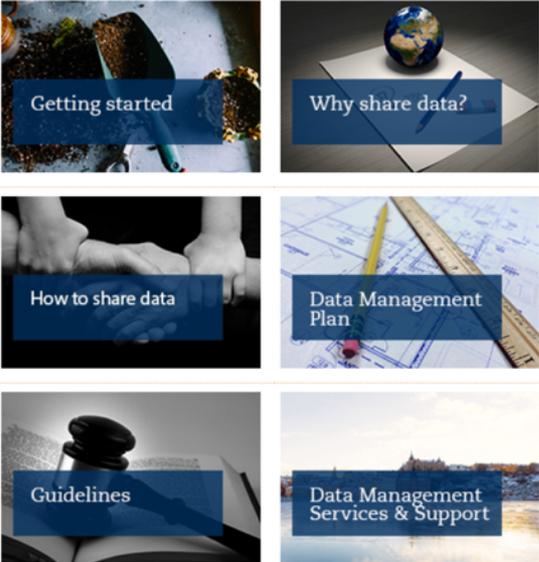


The Research Data Policy include all activities at the university. While considering all the regulations, like GDPR, and the ethical research code.

<http://www.codex.vr.se/en/index.shtml>

Image: <https://www.europeandataportal.eu/it/highlights/practical-guide-building-future-proof-open-data-portals>

**Research Data at Stockholm University**  
Stockholm University offers support services for the management, storage, publication and preservation of research data.



- Contact >
- Participant Portal >
- Prisma >
- Publishing support >
- Research Professional >
- SU Regulations >

<http://su.se/researchdata>

A dedicated website is available for all things related to Research Data Management. Find regulations, guidelines, systems analysis, data management plans and much more.

## Useful Resources

- **Guidelines from the Library:** <https://www.su.se/english/library/publish/strategic-publishing>
- **DOAJ** - <https://doaj.org>
  - Keeps track of registered OA channels
- **Norwegian Register for Scientific Journals, Series and Publishers**  
<https://dbh.nsd.uib.no/publiseringskanaler/Forside>
  - Lists channels in three levels
- **Committee of Publication Ethics (COPE)** <http://publicationethics.org/>
  - How to deal with misconduct and editorial best practice
- Register for an **ORCID** to build your online presence: <https://orcid.org/>
- Information about copyright & licensing for Stockholm University:  
<http://su.se/english/library/publish/copyright>
- **SHERPA/RoMEO** database on Publishers' licensing terms: <http://www.sherpa.ac.uk/romeo/index.php>
- Guidelines from the **Swedish Research Council**: <http://www.codex.vr.se/en/etik2.shtml>
- **The Stockholm University Platform for open data and other publications:** <https://su.figshare.com/>
- What is being measured at Stockholm University: <https://www.su.se/english/library/publish/bibliometrics>
- About finishing on time (book website & resources): <https://finishontime.se/>

More digital tools for PhDs: <http://connectedresearchers.com/online-tools-for-researchers/>

## Useful Resources (continued)

- How to find articles from publishers outside of agreements:  
<https://openaccess.blogg.kb.se/bibsamkonsortiet/alternative-routes-to-scholarly-articles-and-research-outputs/>
- Documentation and recording from the national hearing on Plan S on Jan 22nd (mostly in Swedish/Norwegian):  
<https://www.vr.se/aktuellt/evenemang/alla-evenemang/kalendariehandelser/2018-12-28-hearing-om-plan-s.html>
- The story about Elsevier from the Guardian, published Jun 27, 2017  
<https://www.theguardian.com/science/2017/jun/27/profitable-business-scientific-publishing-bad-for-science>

## Watch

- *Paywall: the business of scholarship* - a documentary which focuses on the need for open access to research and science  
<https://paywallthemovie.com/>
- Jisc Netskills (University of Oxford) – *Visitors and Residents part 3, Open Practices*: <https://youtu.be/1X0g2OvSdWc>
- *Wanna Work Together?* Information about licensing from Creative Commons: <https://vimeo.com/13590841>
- *Open Access Explained* - <https://youtu.be/L5rVH1KGBCY>
- *What are preprints* - <https://youtu.be/2zMgY8Dx9co>

## Stay in touch!

- Book a librarian [bokabibliotekarie@su.se](mailto:bokabibliotekarie@su.se)
- Publishing [publish@su.se](mailto:publish@su.se)
- Open Access [openaccess@su.se](mailto:openaccess@su.se)
- Open Data [opendata@su.se](mailto:opendata@su.se)
- Dissertation support [avhandlingssupport.sub@su.se](mailto:avhandlingssupport.sub@su.se)
- DiVA support [diva@su.se](mailto:diva@su.se)

## Open Data

Niclas Jareborg, NBIS  
[niclas.jareborg@nbis.se](mailto:niclas.jareborg@nbis.se)





<https://www.youtube.com/watch?v=N2zK3sAtr-4>

- Democracy and transparency
  - Publicly funded research data should be accessible to all
  - Published results and conclusions should be possible to check by others
- Research
  - Enables others to combine data, address new questions, and develop new analytical methods
  - Reduce duplication and waste
- Innovation and utilization outside research
  - Public authorities, companies, and private persons outside research can make use of the data
- Citation
  - Articles with published data have higher citation rates
  - Citation of data will be a merit for the researcher that produced it



- Strong international movement towards Open Access (OA)
- European Commission recommended the member states to establish national guidelines for OA
  - Swedish Research Council (VR) submitted proposal to the government Jan 2015
- Research bill 2017–2020 – 28 Nov 2016
  - *“The aim of the government is that all scientific publications that are the result of publicly funded research should be openly accessible as soon as they are published. Likewise, **research data** underlying scientific publications should be **openly accessible** at the time of publication.”*  
[my translation]
- 2018 – VR assigned by the government to coordinate national efforts to implement open access to research data



- To be useful for others data should be
  - **FAIR** - Findable, Accessible, Interoperable, and Reusable  
*... for both Machines and Humans*

Wilkinson, Mark et al. “*The FAIR Guiding Principles for scientific data management and stewardship*”. Scientific Data 3, Article number: 160018 (2016)

<http://dx.doi.org/10.1038/sdata.2016.18>

www.nature.com/scientificdata

**SCIENTIFIC DATA**

**OPEN** Comment: The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson et al.\*

There is an urgent need to improve the infrastructure supporting the reuse of scholarly data. A diverse set of stakeholders—representing academia, industry, funding agencies, and scholarly publishers—have come together to design and jointly endorse a concise and measurable set of principles that we refer to as the FAIR Data Principles. The intent is that these may act as a guideline for those wishing to enhance the reusability of their data holdings. Distinct from peer initiatives that focus on the human scholar, the FAIR Principles put specific emphasis on enhancing the ability of machines to automatically find and use the data, in addition to supporting its reuse by individuals. This Comment is the first formal publication of the FAIR Principles, and includes the rationale behind them, and some exemplar implementations in the community.

Supporting discovery through good data management  
Good data management is not a goal in itself, but rather is the key conduit leading to knowledge discovery and innovation, and to subsequent data and knowledge integration and reuse by the community after the data publication process. Unfortunately, the existing digital ecosystem surrounding scholarly data publication prevents us from extracting maximum benefit from our research investments (e.g., ref. 1). Partially in response to this, science funders, publishers and

Received: 10 December 2015  
Accepted: 12 February 2016  
Published: 15 March 2016

**Box 2 | The FAIR Guiding Principles**

**To be Findable:**  
 F1. (meta)data are assigned a globally unique and persistent identifier  
 F2. data are described with rich metadata (defined by R1 below)  
 F3. metadata clearly and explicitly include the identifier of the data it describes  
 F4. (meta)data are registered or indexed in a searchable resource

**To be Accessible:**  
 A1. (meta)data are retrievable by their identifier using a standardized communications protocol  
 A1.1 the protocol is open, free, and universally implementable  
 A1.2 the protocol allows for an authentication and authorization procedure, where necessary  
 A2. metadata are accessible, even when the data are no longer available

**To be Interoperable:**  
 I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.  
 I2. (meta)data use vocabularies that follow FAIR principles  
 I3. (meta)data include qualified references to other (meta)data

**To be Reusable:**  
 R1. meta(data) are richly described with a plurality of accurate and relevant attributes  
 R1.1. (meta)data are released with a clear and accessible data usage license  
 R1.2. (meta)data are associated with detailed provenance  
 R1.3. (meta)data meet domain-relevant community standards

# G20 HANGZHOU SUMMIT

HANGZHOU, CHINA 4-5 SEPTEMBER

‘We support appropriate efforts to promote **open science** and facilitate appropriate access to publicly funded research results on **findable, accessible, interoperable and reusable (FAIR)**’ (Statement 12)

[http://europa.eu/rapid/press-release\\_STATEMENT-16-2967\\_en.htm](http://europa.eu/rapid/press-release_STATEMENT-16-2967_en.htm)



- **Persistent identifiers**

- Possibility to refer to a dataset over long periods of time
  - Long-term storage - Data should not disappear

- **Unique**

- e.g. DOIs (Digital Object Identifiers)



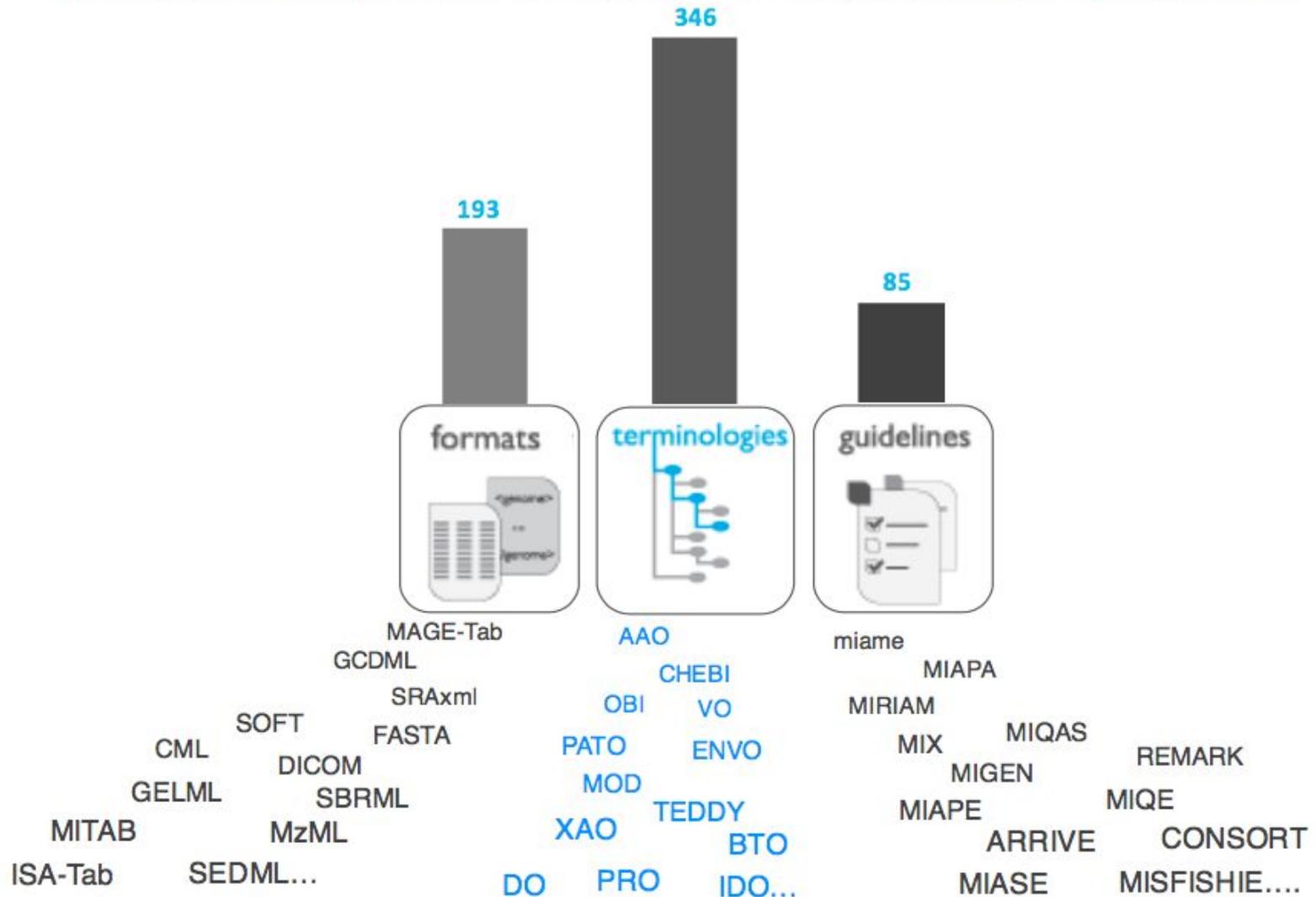
- **Metadata**

- “Data about the Data”
- Domain-relevant *community standards*

- **Discoverability**

- Expose dataset metadata through search functionalities

In the life sciences there are >600 *content standards*



A curated, informative and educational resource on data and metadata *standards*, across all disciplines, inter-related to *databases* and data *policies*.

Find

 **Recommendations**

Standards and/or databases recommended by journal or funder data policies.

Discover

 **Collections**

Standards and/or databases grouped by domain, species or organization.

Learn

 **Educational**

About standards, their use in databases and policies, and how we can help you.

Search

Standards  Databases  Policies  Collections/Recommendations

Advanced Search

  
Fine grained control over your search.

Search Wizard

  
Let us guide you to your results.



699 Standards

Terminology Artifact	343
Model/Format	239
Reporting Guideline	117

View all



974 Databases

Life Science	733
Biomedical Science	181
General Purpose	10

View all

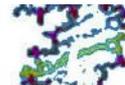


97 Policies

Funder	22
Journal	68
Society	3

View all

## International public repositories



- Persistent identifiers
- Domain-specific metadata standards
- Indexed for searching

 *Strive to upload data to its final destination already at the beginning of a project*

## ELIXIR Deposition Database list

Deposition Database	Data type	International collaboration framework <sup>1</sup>
<a href="#">ArrayExpress</a>	Functional genomics data. Stores data from high-throughput functional genomics experiments.	
<a href="#">BioModels</a>	Computational models of biological processes.	
<a href="#">BioSamples</a>	BioSamples stores and supplies descriptions and metadata about biological samples used in research and development by academia and industry.	NCBI BioSamples database
<a href="#">BioStudies</a>	Descriptions of biological studies, links to data from these studies in other databases, as well as data that do not fit in the structured archives.	
<a href="#">EGA</a>	Personally identifiable genetic and phenotypic data resulting from biomedical research projects.	European Bioinformatics Institute and the Centre for Genomic Regulation
<a href="#">EMDB</a>	The Electron Microscopy Data Bank is a public repository for electron microscopy density maps of macromolecular complexes and subcellular structures.	
<a href="#">ENA</a>	Nucleotide sequence information, covering raw sequencing data, contextual data, sequence assembly information and functional and taxonomic annotation.	International Nucleotide Sequence Database Collaboration
<a href="#">EVA</a>	The European Variation Archive covers genetic variation data from all species.	dbSNP and dbVAR
<a href="#">IntAct</a>	IntAct provides a freely available, open source database system and analysis tools for molecular interaction data.	The International Molecular Exchange Consortium
<a href="#">MetaboLights</a>	Metabolite structures and their reference spectra as well as their biological roles, locations and concentrations, and experimental data from metabolic experiments.	
<a href="#">PDBe</a>	Biological macromolecular structures.	wwPDB
<a href="#">PRIDE</a>	Mass spectrometry-based proteomics data, including peptide and protein expression information (identifications and quantification values) and the supporting mass spectra evidence.	The ProteomeXchange Consortium

## SCIENTIFIC DATA

## Scientific Data

## Recommended Data Repositories

### Biological sciences ↗

#### Nucleic acid sequence ↗

Sequence information should be deposited following the [MIxS](#) guidelines.

Simple genetic polymorphisms or structural variations should be submitted to dbSNP or dbVar (please note that these repositories cannot accept sensitive data derived from human subjects); the NCBI Trace Archive may be used for capillary electrophoresis data, while SRA accepts NGS data only.

<a href="#">DNA DataBank of Japan (DDBJ)</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">European Nucleotide Archive (ENA)</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">GenBank</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">dbSNP</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">European Variation Archive (EVA)</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">dbVar</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">Database of Genomic Variants Archive (DGVA)</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">EBI Metagenomics</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">NCBI Trace Archive</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">NCBI Sequence Read Archive (SRA)</a>	<a href="#">view FAIRsharing entry</a>
<a href="#">NCBI Assembly</a>	

#### Protein sequence ↗

<a href="#">UniProtKB</a>	<a href="#">view FAIRsharing entry</a>
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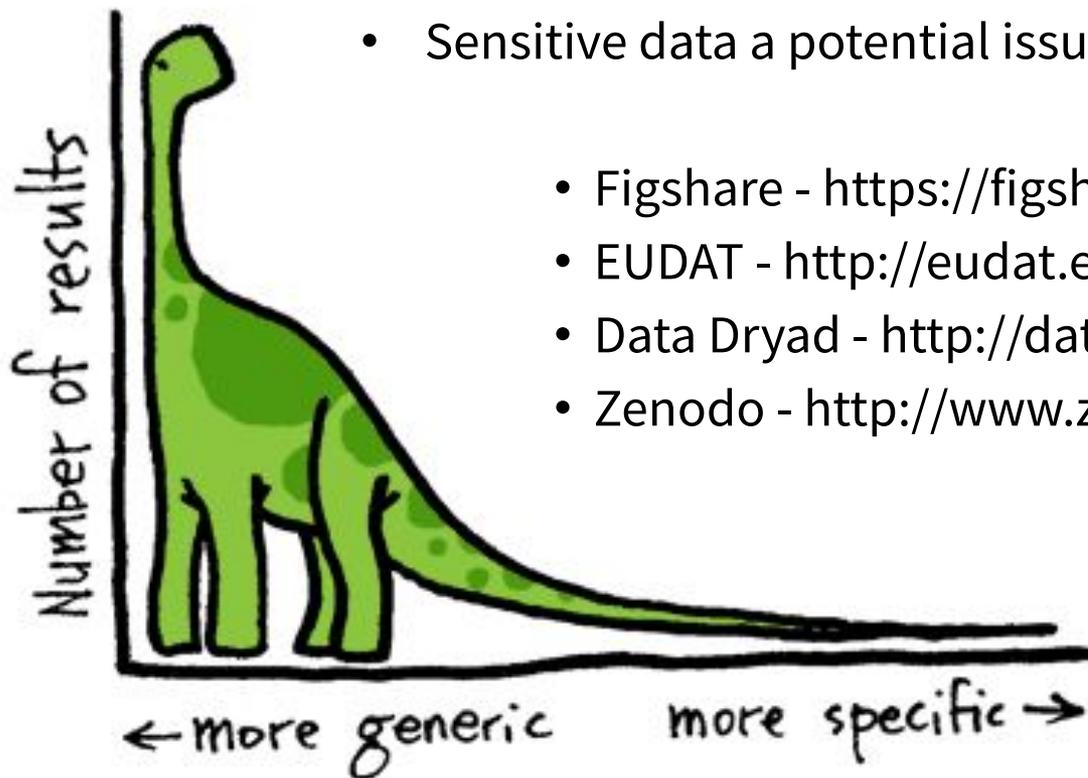
#### Molecular & supramolecular structure ↗

These repositories accept structural data for small molecules (COD); peptides and proteins (all); and larger assemblies (EMDB).

Small molecule crystallographic data should be uploaded to Dryad or figshare before manuscript submission, and should include a .cif file, a structural figure with probability ellipsoids, and structure factors for each structure. Both the structure factors and the structural output must have been checked using the IUCR's [CheckCIF routine](#), and a copy of the output must be included at submission, together with a justification for any alerts reported.

<a href="#">Protein Circular Dichroism Data Bank (PCDDB)</a>	<a href="#">view FAIRsharing entry</a>
--	--

- Research data that doesn't fit in structured data repositories
- Data publication – persistent identifiers
- Metadata submission – not tailored to Life Science
  - *Affects discoverability*
  - *(Less) FAIR*
- Sensitive data a potential issue



- Figshare - <https://figshare.com/>
- EUDAT - <http://eudat.eu/>
- Data Dryad - <http://datadryad.org/>
- Zenodo - <http://www.zenodo.org/>

# Personal data



- Processing Personal Data comes with several **obligations**
  - As an employee of SU you must ensure the obligations are met, if you process personal data
- A **Data Protection Officer** (*dataskyddssombud*)
  - The natural person that is responsible for ensuring that the organization/company adheres to the GDPR
  - Educate & Audit
  - Contact point between organization and Data Protection Agency
- **Ask the DPO for guidance!**

[gdpr@su.se](mailto:gdpr@su.se)

<http://su.se/gdpr>

<http://su.se/english/gdpr>

*“As open as possible, as closed as necessary”*

- **EGA** – European Genome-phenome Archive



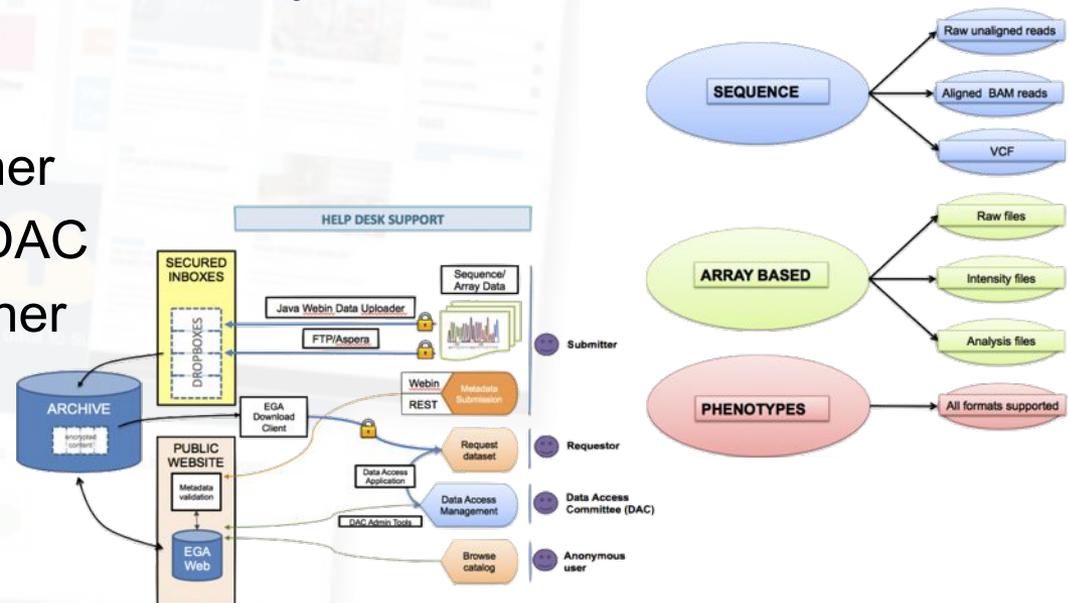
- Repository that promotes the distribution and sharing of **genetic and phenotypic data** consented for specific approved uses but **not fully open, public distribution.**
- All types of sequence and genotype experiments, including case-control, population, and family studies.

- Data Access Agreement

- Defined by the data owner

- Data Access Committee – DAC

- Decided by the data owner



- 
- How do you ensure that your research output is FAIR?
  - Plan for submitting "raw data" to public repositories as early as possible
    - Organize project metadata from the start
      - In ways that makes it easy to submit to public repositories
      - Use available standards
  - Be aware that there are legal aspects to processing human data
  - ***Ask for help if you need it!***



**Karolinska  
Institutet**

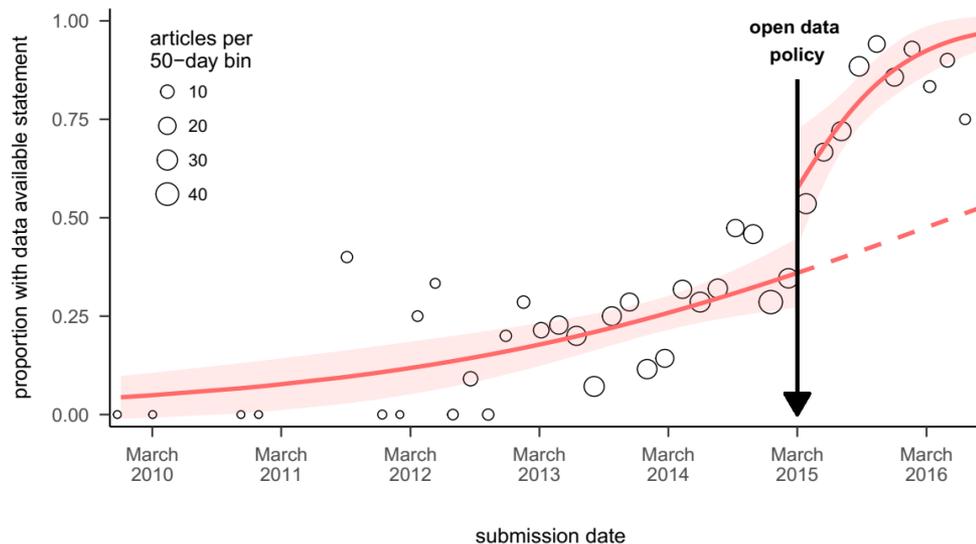
# Open methodology and reproducible research

Gustav Nilsson



# How reproducible are reported analyses based on the same data?

- The journal Cognition introduced an open data policy in 2015
- We retrieved data from 35 articles and attempted to reproduce the published findings



[Hardwicke et al, Royal Society Open Science 2018](#)

# One third of papers were fully reproducible based on reported data





# Open code

## Why

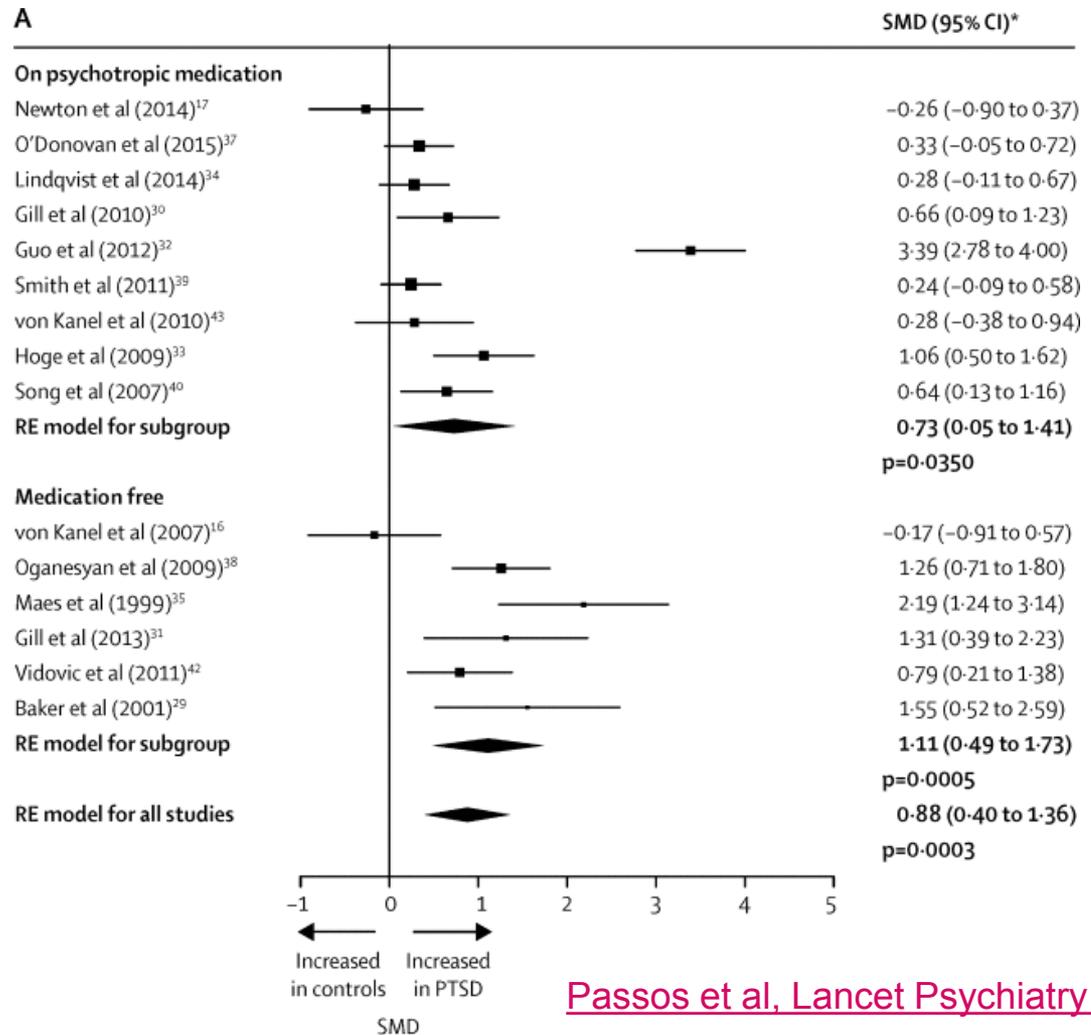
- Increase reproducibility
- Increase re-use value and visibility

## How

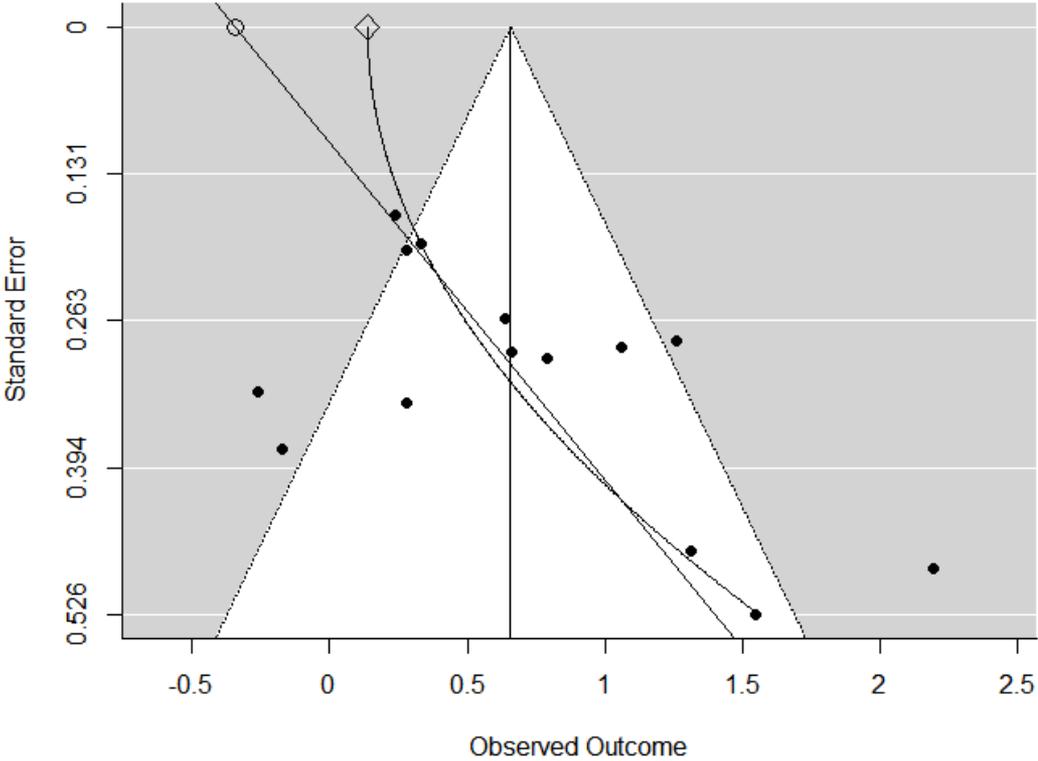
- Best practice: code repository such as GitHub in combination with doi generator such as Zenodo
  - Version control
  - Permanent identifier
  - Long-term preservation
- Open licence enables re-use

# Bias-adjusting a meta-analysis with open data and code

- Higher levels of IL-6 in patients with PTSD

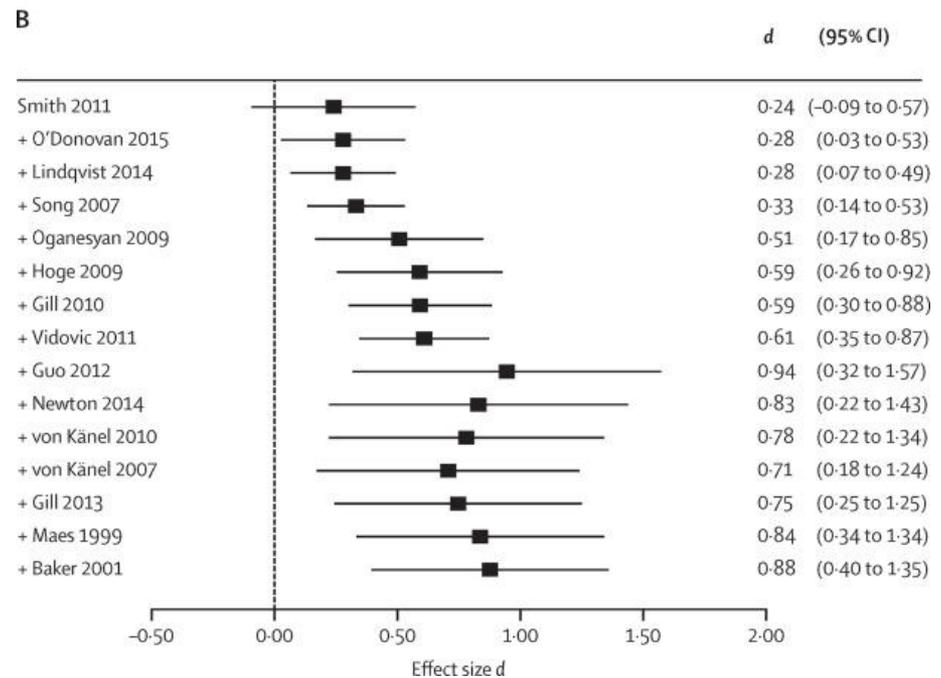
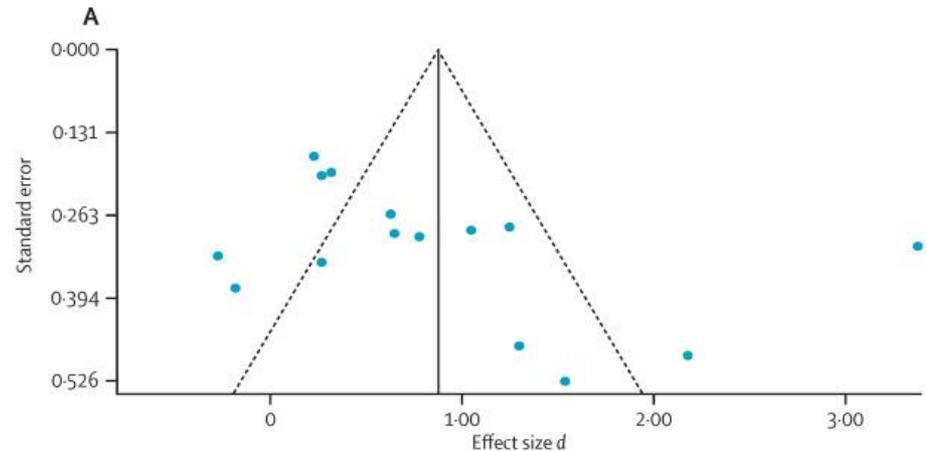


# Bias adjustment with PET/PEESE regression



# Final results

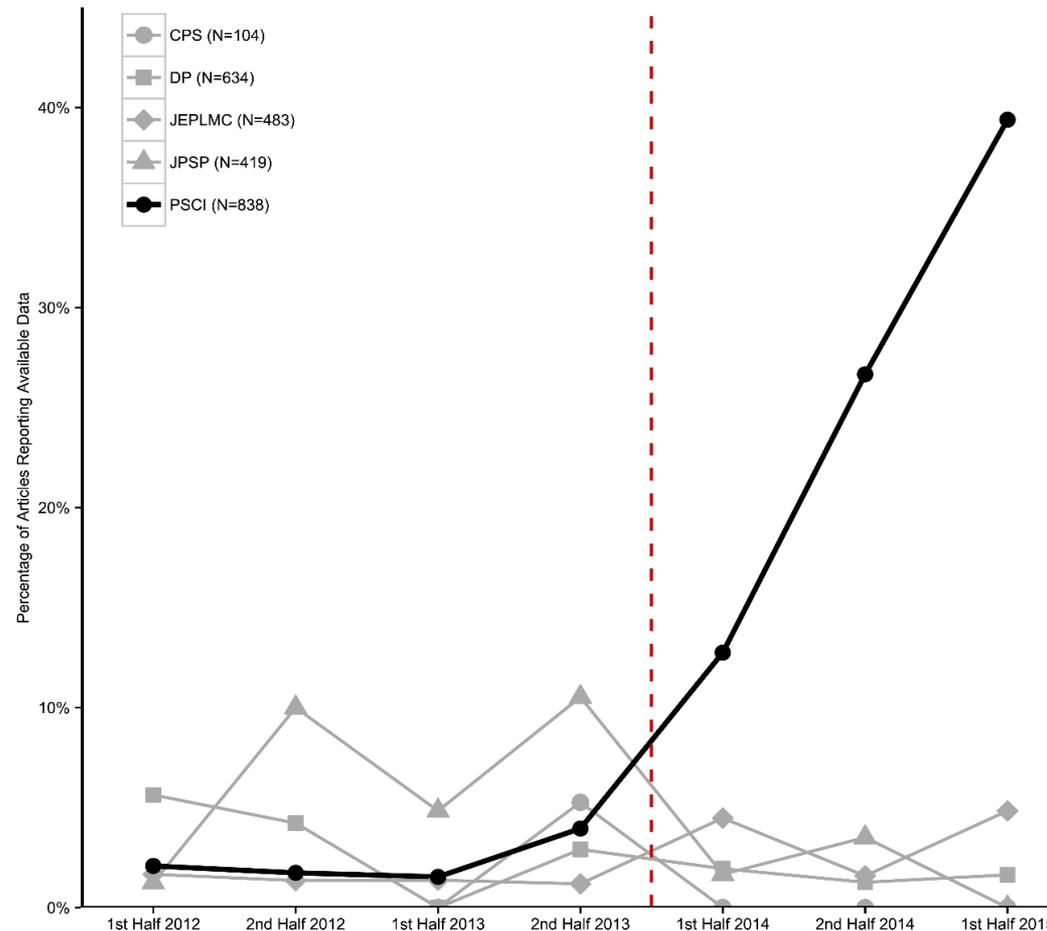
- Levels of IL-6 in PTSD overestimated due to publication bias



## Badges for open science practices: an effective incentive?



# Open data in one journal after the introduction of badges



[Kidwell et al. PLoS Biol 14\(5\): e1002456](#)

# Open materials: badge criteria

- Digitally-shareable materials are publicly available on an **open-access repository**. The materials must have a **persistent identifier** and be provided in a format that is **time-stamped, immutable, and permanent** (e.g., university repository, a registration on the [Open Science Framework](#), or an independent repository at [www.re3data.org](http://www.re3data.org)).
- Infrastructure, equipment, biological materials, or other components that cannot be shared digitally are **described in sufficient detail** for an independent researcher to understand how to reproduce the procedure.
- Sufficient explanation for an independent researcher to understand how the materials relate to the reported methodology.

# Preregistration:

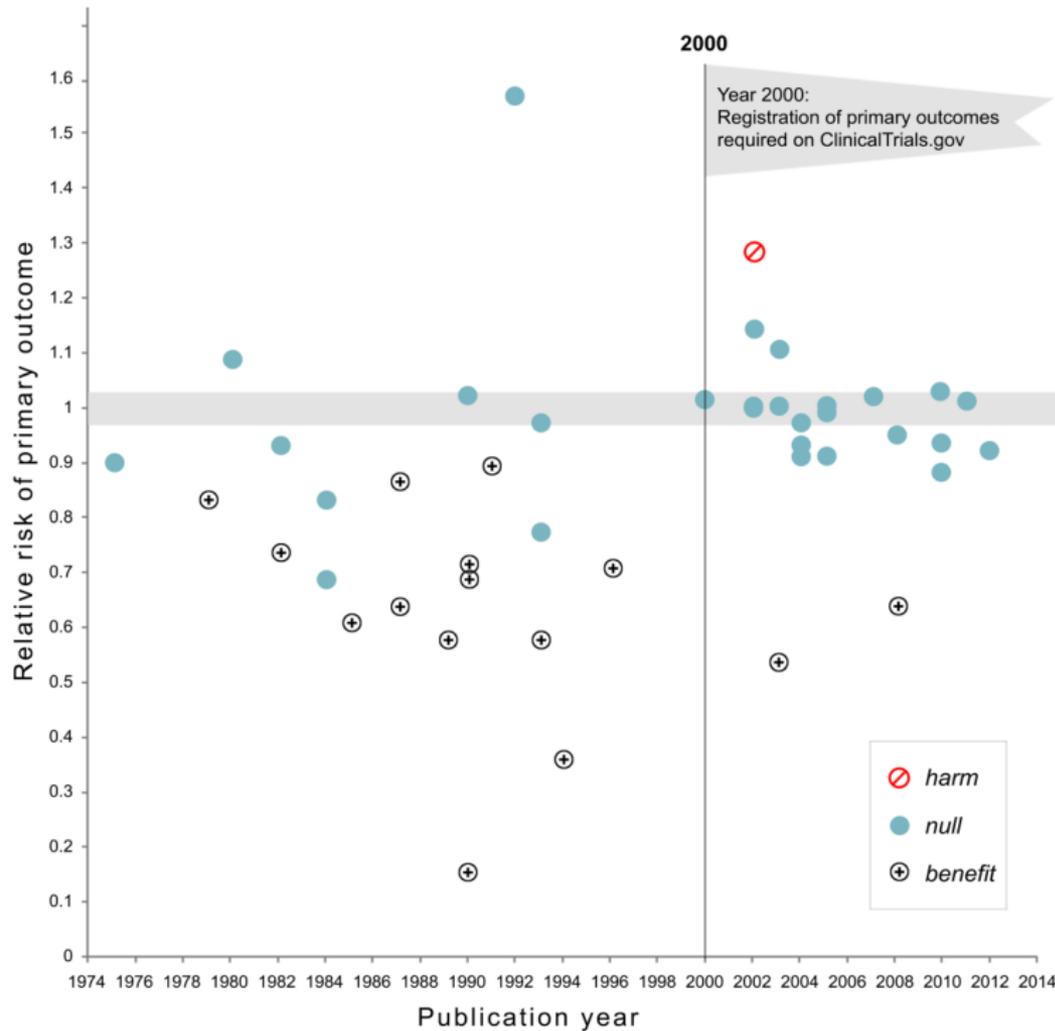
The Preregistered badge is earned for having a preregistered design. A preregistered design includes:

- (1) Description of the research design and study materials including planned sample size,
- (2) Description of motivating research question or hypothesis,
- (3) Description of the outcome variable(s), and
- (4) Description of the predictor variables including controls, covariates, independent variables (conditions). When possible, the study materials themselves are included in the preregistration.

# Badge criteria

- A public date-time stamped registration is in an institutional registration system (e.g., [ClinicalTrials.gov](#), [Open Science Framework](#), [AEA Registry](#), [EGAP](#)).
- Registration pre-dates the intervention.
- Registered design and analysis plan corresponds directly to reported design and analysis.
- Full disclosure of results in accordance with registered plan.

# Preregistration policy and large trials funded by the NHLBI



Kaplan et al. 2015

# Policy of Open Science

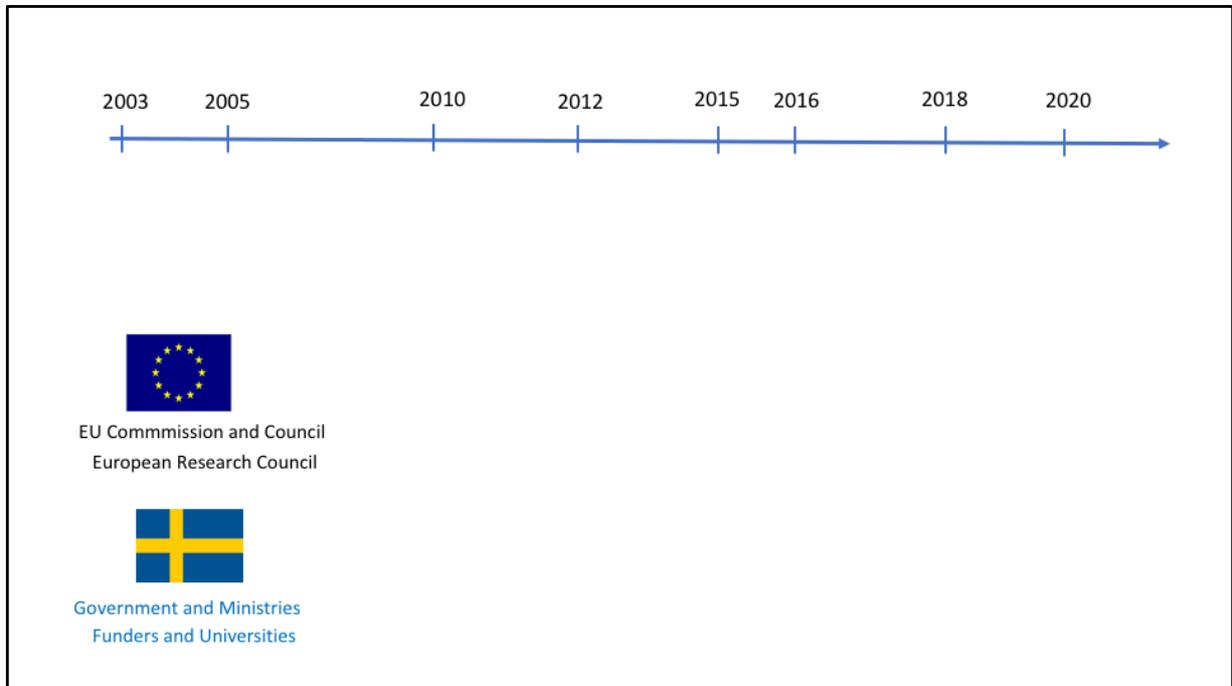
Anna Wetterbom, PhD  
CEO The Young Academy of Sweden  
[www.sverigesungaakademi.se](http://www.sverigesungaakademi.se)

Who am I?

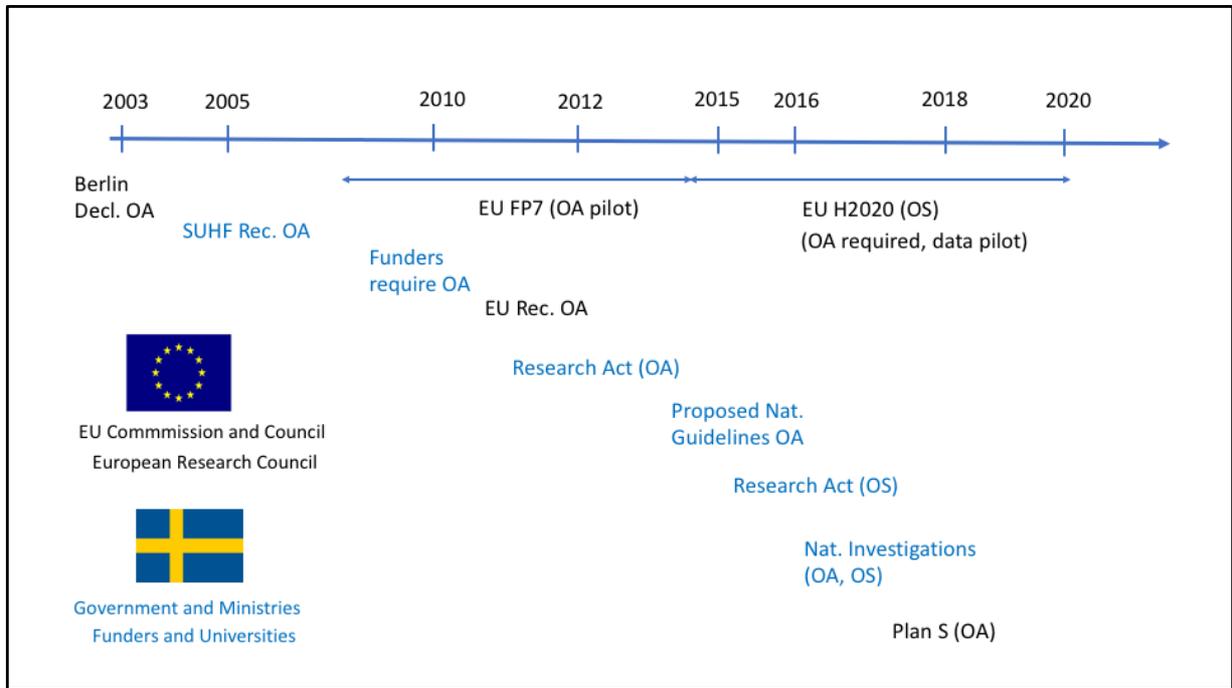
- CEO of the Young Academy of Sweden
- Worked at VR with digital infrastructures, open access/data/science (2012-2017)
- Worked av Min of Higher Ed and Res (2017), research act

## Common motivations

- Democracy and fairness
- Improving science
- Support innovations and SMEs
- Support other parts of society
- Financial



SE policy/politics is influenced by EU  
Lines of decision in SE



Chain of events

## **Wilhelm Widmark, director SU library**

*Open Science Efforts at SU*



## Open Science as default

*"Stockholm University advocates the availability of its research and research results through a research and education environment that promotes, encourages and informs about open science as a practice"*

Research Data Policy Stockholm University  
Decision by the Vice-Chancellor on February 22, 2018. Dnr SU FV 5.1.1-1780-17



*"Research that is wholly or partly publicly funded should be managed and be openly available in accordance with internationally accepted principles as far as possible with regard to legal, ethical and possible commercial aspects. Stockholm University supports the international FAIR data principles which means that research data should be managed in a way that makes them findable, accessible, interoperable and reusable"*



The national goal in Sweden is that all scientific publications resulting from research financed with public funds should be published immediately open access and that research data, on which the scholarly publication is based, should be made open access together with the publication. The ambition is that transition to open access to scholarly publications, research data and artistic works should be fully implemented in **2026** at the latest.

## Influences Open Science



## Negotiating transformative offsetting deals



### **Preconditions**

- New market
- Different business models
- Pilots
- Negotiations takes long time
- Shorter agreements

### **Deals**

- Springer Compact
- IOP
- De Gruyter
- Royal Society of Chemistry
- Taylor & Francis
- Cambridge University Press
- Oxford University Press
- AIP

## Springer Nature Fully OA

Imprint	Tidskrift	Antal tidskrifter 2019	Publicerings-avgifter
	<b>BMC series</b>	70	€990 - €1999
	<b>BMC academic journals</b>	242	€700 - €2990
	<b>BMC Flagships</b>	4	€2270 - €3060
	<b>Open journals</b>	195	€510 - €2170
	 <b>Future Communications</b>	1	€4290
	 <b>Communications in Biology</b>	3	€2570
	 <b>Communications in Chemistry</b>	1	€1490
	 <b>Communications in Physics</b>	1	€1390
	 <b>npj journals</b>	23	€1310-€2790
	<b>Academic OA journals</b>	18	€1430 - €3580
	 <b>communications</b>	1	€990
<b>Total</b>		<b>559</b>	

# University Initiatives



## Stockholm University

- Get published in full Open Access free of charge. The money that Stockholm University saves from the cancelled agreement with Elsevier will be used to publish research in full Open Access journals

The screenshot shows a news article on the Stockholm University Library website. The article title is "Stockholm University gives researchers more support to get published in full Open Access journals". The sub-headline reads: "The money that Stockholm University saves at the cancelled agreement with large science publisher Elsevier will be used to publish research in full Open Access journals." The main text explains that Sweden's research libraries have, through the national consortium Bilisam, terminated its agreement with Elsevier as of July. The reason is that the parties could not agree on a reasonable price model and a sustainable solution for a transition towards open access. It further states that according to Stockholm University, the transition to open access is slow and the publishing in hybrid journals, where you publish separate articles Open Access in an otherwise subscription-based journal, does not urge the development quickly enough. The article concludes that Stockholm University will therefore use the money deposited in the terminated agreement to support those of the university's researchers who want to get published in full Open Access journals. It also mentions that according to the university, publishing in full Open Access journals with all publishers help to urge the development towards a sustainable transition to open access.

## Pure OA publishers

- PLOS
- Copernicus
- Frontiers
- MDPI

*Stockholm University has an agreement for paying APCs with these four publishers. This is a strategic move to offer easy ways for researchers to publish OA in addition to the agreements with the larger traditional publishers.*

## ALIGNING STRATEGIES TO ENABLE OPEN ACCESS

14<sup>th</sup> Berlin Open Access Conference  
3 - 4 December 2018 | Harnack House | Berlin



**Participants from 37 nations and five continents**

## Final Conference Statement



- We are all committed to authors retaining their copyright,
- We are all committed to complete and immediate open access,
- We are all committed to accelerating the progress of open access through transformative agreements that are temporary and transitional, with a shift to full open access within a very few years.
- These agreements should, at least initially, be cost-neutral, with the expectation that economic adjustments will follow as the markets transform.

## Research Data Policy

- Research that is wholly or partly publicly funded should be managed and be openly available in accordance with internationally accepted principles as far as possible with regard to legal, ethical and possible commercial aspects.
- Stockholm University supports the international FAIR data principles which means that research data should be managed in a way that makes them findable, accessible, interoperative and reusable. Making research data, or information about data, openly accessible is valuable for validating research results and for enabling the reuse of research to create new knowledge.
- The University supports the development of sustainable research infrastructures and research data management services at local, national and international level and participates in national and international contexts that promote new incentives and structures for open science.
- Stockholm University advocates the accessibility of its research and research results through a research and education environment that promotes, encourages and informs about open science as a practice.
- The University of Stockholm, based on current regulations, the EU Data Protection Ordinance GDPR, and research funding requirements, will offer its researchers support in the work of managing and making available research results and research data in accordance with good research practice.
- The University shall provide an infrastructure of services and resources that support and enable proper handling, storage, availability and preservation of research data as an essential and natural part of the research process. The local infrastructure will be developed on a regular basis, following the regulations, the new data protection regulation, as well as the formal guidelines advocated by the EU, the Government, the Swedish Research Council, research funding and other relevant actors.
- Stockholm University strives to ensure that exclusive ownership rights to the publication and reuse of research data are not transferred to commercial scientific publishers.

Research Data Policy Stockholm University. Decision by the Vice-Chancellor on February 22, 2018. Dnr SU FV 5.1.1-1780-17



## RDM team offers support and skilled expertise



# Open Data Champions



Stockholms  
universitet



**European Open Data Champions**

Inspiration from influential European academics and information professionals on Open Data



OPEN DATA

Home » Champions » Data is the foundation on which we scientists base our claims and inferences about the world

**Name:** Gustav Nilsson  
**Position:** Researcher  
**Institution:** Karolinska Institutet and Stockholm University  
**Country:** Sweden  
**Main fields:** Home Page, Twitter, Other  
**ORCID ID:** <http://orcid.org/0000-0001-5279-0150>

*"Data is the foundation on which we scientists base our claims and inferences about the world"*



**An interview with Gustav Nilsson on 2 June 2017**

Why you are keen to share data?

How you are involved with sharing data and how do you get others to do the same?

**Fler forskare behöver engagera sig i Open Science**

Delad data gör att fler kan använda datan – men också upptäcka fel. Det gynnar alla och förändrar dynamiken i forskningen. Men fler forskare behöver engagera sig för att ändra normerna i forskarevärlden, säger Lars Arvestad, lektor vid Matematiska institutionen.

Stockholms universitet arbetar aktivt med att främja öppen vetenskap och det nya paradigmskifte som det innebär att i högre grad tillgängliggöra forskningsresultat och forskningsdata när så är möjligt. [Organisationen kring universitetets forskningsdatahantering](#) vill därför lyfta fram forskare vid Stockholms universitet som på olika sätt är aktiva och engagerade inom öppen vetenskap.



Lars Arvestad. Foto: Privat.

**Föreläsningsserie om Open Science**

Står du för öppen vetenskap? Om forskningen utgår från öppen vetenskap. Du får en öppen debatt om påverkningar och möjligheter med öppen tillgång till forskning.

Föreläsningarna har spelats in och finns också som film och på YouTube, Facebook, SoundCloud.

**Tidigare föreläsningar (öppningsföreläsning)**

- 11 april 2017, Thomas Nordström, ISM, om öppen vetenskap och öppen forskning
- 12 april 2017, Hans Lundberg, ÅFSA, om öppen vetenskap för arbete på land och i sjö
- 13 april 2017, Anneli Mikkelsson, WU, om öppen vetenskap och öppen forskning
- 14 april 2017, Alexander Holm, ÅFSA, om öppen vetenskap och öppen forskning
- 15 april 2017, Stefan Lindgren, om forskningens öppenhet och öppenhetens roll i forskningen
- 16 april 2017, Jonas Nilsson, om Open Science, om öppen vetenskap och om öppenhetens roll i vetenskapen
- 17 april 2017, Nina Bergström och Peter Frånberg, om öppenhet och öppenhetens roll i vetenskapen
- 18 april 2017, Mikael Holm, om öppenhetens roll i vetenskapen
- 19 april 2017, Stefan Lindgren, om Open Science, om öppen vetenskap och om öppenhetens roll i vetenskapen
- 20 april 2017, Cecilia Berth, om att göra forskning tillgänglig och öppen

**Ilona Koupil om betydelsen av open science**

Professor Ilona Koupil vid Institutionen för folkhälsovetenskap ger här sin bild av open science och vilken betydelse det har för att främja forskningen framåt.

**Vad ser du som de största fördelarna med open science?**

Jag ser en omedelbar och fri tillgång till de senaste forskningsresultaten som någonting mycket viktigt för alla forskare, forskarstuderande och användare av forskningsresultat som evidensunderlag. Jag tycker också att det är mycket viktigt att forskare kan sprida resultaten av sitt arbete och göra nya upptäckter tillgängliga för en vidare publik så snart som möjligt.

**Vilka praktiska tillämpningar av open science ser du som mest betydelsefulla för god forskningspraxis?**

De senaste initiativen för att uppmuntra och stödja publicering i vetenskapliga tidskrifter med open access (öppen tillgång) har gjort forskningen mer effektiv. På mitt forskningsområde, folkhälsovetenskap, bidrar open access publicering också till att nyttan med forskningen får en bredare spridning och att nya forskningsresultat kan komma till användning till förmån för folkhälsan i alla socialgrupper och geografiska regioner.



Ilona Koupil. Foto: SU.

<https://www.su.se/english/staff/services/research/research-data/open-science-at-su>

Lectures and communication on Open Science locally and externally