

Hilmar Brohmer

# Mein Erfahrungen zur Anwendung von **Open-Science** Praktiken

15.01.24

# Wie ich **Open- Science** verstehe und anwende...

- ... hat seine Ursprünge in der **Replikationskrise** der Psychologie
- ... bezieht sich daher auf **relevante Teilaspekte** von **Open Science (OS)**
- ... lässt sich in den **Workflow von Forschenden** gut, aber mit etwas Übung, integrieren

# False positives: fraud and misconduct are threatening scientific research

High-profile cases and modern technology are putting scientific deceit under the microscope



Alok Jha, science correspondent  
The Guardian, Thursday 13 September 2012 18.12 BST



The Dutch psychologist Diederik Stapel was named in 30 peer-reviewed papers. Photograph: [unclear]

Dirk Smeesters had spent several years as a psychologist at Erasmus University

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### Psychology

This article is more than 11 years old

# Precognition studies and the curse of the replications

Chris French

Science progresses when repeat studies back or refute previous research, but getting 'replications' published can be a

RESEARCH ARTICLE



# Estimating the reproducibility of psychological science

OPEN SCIENCE COLLABORATION | [Authors Info & Affiliations](#)

SCIENCE • 28 Aug 2015 • Vol 349, Issue 6251 • DOI: 10.1126/science.aac4716

## Empirically analyzing empirical evidence

One of the central goals in any scientific endeavor is to understand causality. Experiments that seek to demonstrate a cause/effect relation most often manipulate the postulated causal factor. Aarts *et al.* describe the replication of 100 experiments reported in papers published in 2008 in three high-ranking psychology journals. Assessing whether the replication and the original experiment yielded the same result according to several criteria, they find that about one-third to one-half of the original findings were also observed in the replication study.

Science, this issue [10.1126/science.aac4716](https://doi.org/10.1126/science.aac4716)

# Originalforschung unter Verdacht: P-hacking

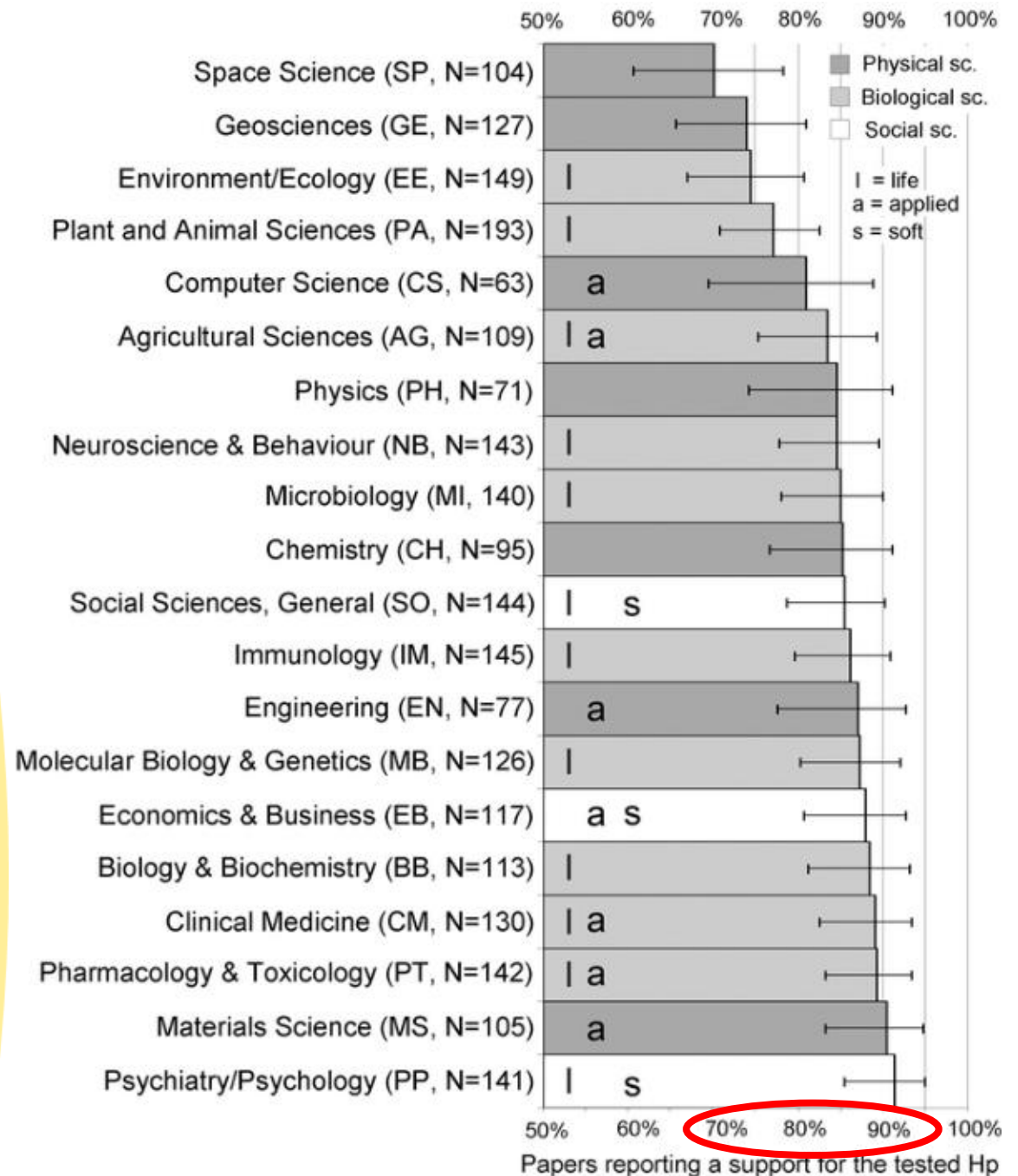
# HARKing\*



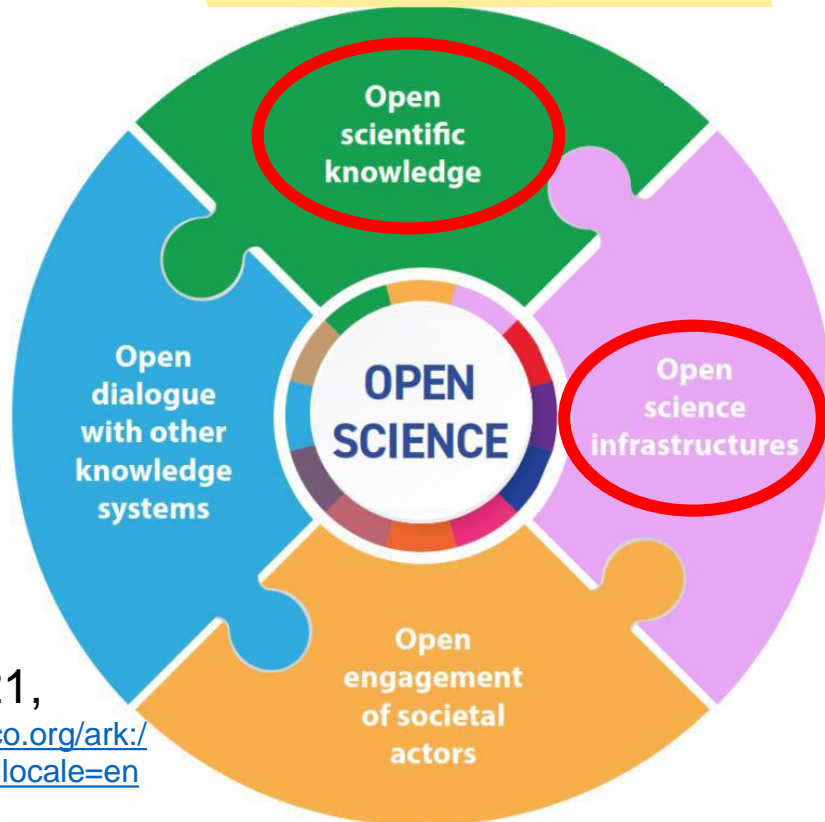
\* Hypothesizing After Results are Known

# Fragwürdige Forschungs- praktiken (Questionable Reserach Practices) führen zu Publication Bias

John et al., 2012, <https://doi.org/10.1177/0956797611430953>  
 Fanelli, 2010, <https://doi.org/10.1371/journal.pone.0010068>



# Relevante Teilaspekte von OS



UNESCO, 2021,  
<https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en>

- Für analytische **Reproduzierbarkeit**: offene / FAIR\* Daten und Code
- Für methodische **Replizierbarkeit**: offene Methoden und Materialien
- Für einen **transparenteren Forschungsprozess**: Präregistrierung



\* Wilkinson et al., 2016,  
<https://doi.org/10.1038/sdata.2016.18>  
COS, <https://www.cos.io/initiatives/badges>

# Abstecher: Präregistrierung\*

-  
was ist das?



- Ein schriftlicher Plan, zu den Hypothesen, Analysen, Samples für eine zukünftige Studie
- Hochzuladen auf eine Repositorium (z.B. Open Science Framework)
- **VOR** der Datenerhebung (oder Datensichtung)
- Gibt's auch mit Peer-Review bei vielen Journalen (siehe [cos.io/rr](https://cos.io/rr)), genannt **Registered Report**

# Ein Rezept aus meiner Zeit als Dissertant\*



1. Unterstützende und Austausch mit Betreuung & Kollegen
2. Intrinsische Motivation (wenn externe Normen nicht vorhanden sind)
3. Kleine Schritte > große Vorhaben
4. Peers mit ins Boot holen



Katja Corcoran

\* Brohmer, 2020, <https://doi.org/10.5281/zenodo.3733749>



# Zeitlicher Abriss

- Beginn: Anfang 2016
- Erste 5-10 Studien kaum OS-Praktiken

- Ende 2016: Nutzung **Open Science Framework** Repository (osf.io) für



- Anfang 2017: Systematische **Prä-registrierung** von Studien



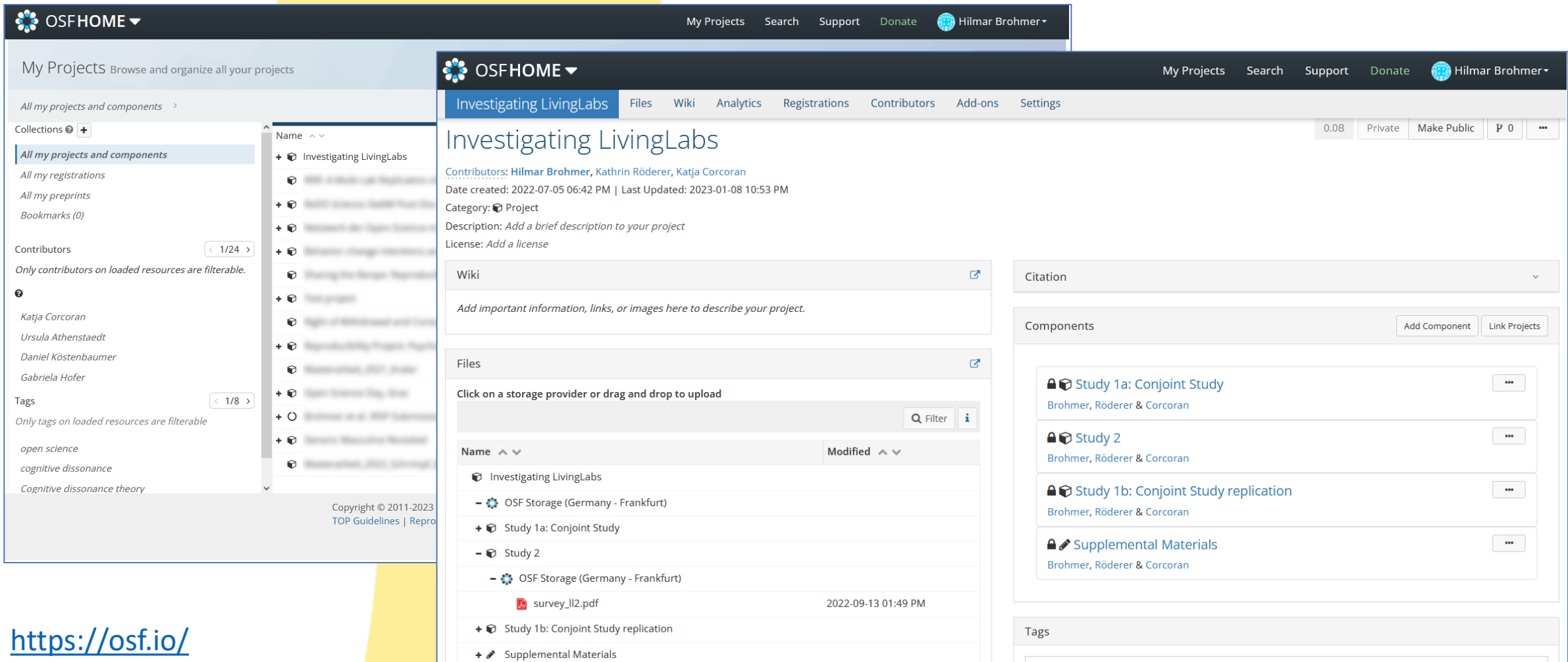
- Anfang 2017: Integrierung von OS im Master-Seminar
- Mitte 2017: **Registered Report**
- Mitte 2018: **Doktoratskongress** mit OS
- Mitte 2018: **Graz Open Science Initiative**
- 2019/20: **Meta-Analyse** zu Publication Bias in meinem Diss-Thema
- 2021: **Open Science Übung im Master**

# Wie geht



- Rohe Daten ohne Labels und Beschreibungen sind nicht verwendbar!
- **Metadaten:** Variablenlisten, Labels, Read-me Files
- Angemessene Anonymisierung im Einklang mit DSGVO
- Einige Paradigmen und Materialien (z.B. Online-Fragebögen) können auch geteilt werden, wenn sie kein Copy-Right haben

# So sieht's aus:



The screenshot displays the OSFHOME interface for a project named "Investigating LivingLabs". The top navigation bar includes "My Projects", "Search", "Support", "Donate", and the user profile "Hilmar Brohmer". The main content area is divided into several sections:

- Project Overview:** Shows the project name, contributors (Hilmar Brohmer, Kathrin Röderer, Katja Corcoran), creation date (2022-07-05 06:42 PM), and last update (2023-01-08 10:53 PM). It also includes fields for category, description, and license.
- Wiki:** A section for adding important information, links, or images to describe the project.
- Files:** A section for uploading files, showing a list of files including "Investigating LivingLabs", "OSF Storage (Germany - Frankfurt)", "Study 1a: Conjoint Study", "Study 2", "OSF Storage (Germany - Frankfurt)", "survey\_I12.pdf" (dated 2022-09-13 01:49 PM), "Study 1b: Conjoint Study replication", and "Supplemental Materials".
- Citation:** A section for adding a citation for the project.
- Components:** A section for adding components, showing a list of components including "Study 1a: Conjoint Study", "Study 2", "Study 1b: Conjoint Study replication", and "Supplemental Materials".
- Tags:** A section for adding tags to the project.

On the left side, there is a sidebar with navigation options for "My Projects", "All my projects and components", "Collections", "Contributors", and "Tags".

<https://osf.io/>

# Im Paper:

**SPRINGER LINK**

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Home > Discover Sustainability > Article

## How attractive is the participation in a Living Lab study? Experimental evidence and recommendations

Brief Communication | Open access | Published: 18 May 2023 | 4, Article number: 23 (2023)

Download PDF  You have full access to this open access article

Hilmar Brohmer , Katinka Munz, Kathrin Röderer, Christoph Anzengruber, Matthias Corcoran, Katja Corcoran

## Ethics declarations

### Ethics approval and consent to participate

Studies reported in this article were approved by the local Ethics Committee at the University of Graz (identifier: GZ. 39/44/63 ex 2020/21) in accordance with the §2 (4) Statute of the Ethics Commission. Informed consent to participate (in line with the General Data Protection Regulation of the European Union) was obtained from all participants. All materials, anonymized data, and codes are available from the Open Science Framework: <https://osf.io/8mr45/>. All studies were preregistered before data analysis: Study 1a: <https://osf.io/35k7m/>, Study 1b: <https://osf.io/uyvh2/>, Study 2: <https://osf.io/4ma3z/>.

Brohmer et al., 2023,  
<https://doi.org/10.1007/s43621-023-00138-6>

# Zitationsfähige Daten:

**PsychArchives**

Home / Browse / Dataset for: Effects of the Generi... Home Contribute Browse DRO Types Info

**Research Data**

**Dataset for: Effects of the Generic Masculine and its Alternatives in Germanophone countries.**

**Author(s) / Creator(s)**  
Brohmer, Hilmar  
Hofer, Gabriela

**Other kind(s) of contributor**

**Persistent Identifier**  
<https://doi.org/10.23668/psycharchives.8416>

**Date of first publication**  
2022-11-16

<https://doi.org/10.23668/psycharchives.8416>

Or publish a data report in e.g.,

<https://openpsychologydata.metajnl.com/>

<https://www.sciencedirect.com/journal/data-in-brief>



Data in Brief

Open access

Journal of open psychology data

# Wie geht



?

\* **Tipp:** Bevor man von einer sehr umfangreichen Templates überwältigt wird, lieber eine einfache Form für den Beginn wählen (z.B. die *AsPredicted*-Form)

- Festlegen auf Hypothesen, Forschungsdesigns, Analysepläne und Samplegrößen
- Diese dann in einer **strukturierten Prärereg-Form** niederschreiben
- Wichtig: man kann dann ein time-stamped Embargo setzen, bevor die Prärereg veröffentlicht wird (gegen „Ideenklau“)
- Populäre Templates\* gibt's hier:
- <https://osf.io/zab38/wiki/home/>



# So sieht's aus:

The screenshot shows the OSF Registries website interface. At the top, the browser address bar displays <https://osf.io/35k7m>, which is circled in red. The website header includes the OSF Registries logo and navigation links: Add New, My Registrations, Help, Donate, Join, and Login. The main heading is "Study 1: Conjoint Study". Below this, there are dropdown menus for "Public registration" and "Updates", along with share, bookmark, and refresh icons. The left sidebar contains a navigation menu with the following items: Overview (selected), Metadata, Files, Resources, Wiki, Components (1), Links (0), Analytics, and Comments (0). Below the sidebar is a section for "Open practice resources" with a question mark icon, listing Data, Analytic code, and Materials. The main content area is titled "Preregistration Template from AsPredicted.org" and includes a hamburger menu icon. It contains several sections: "Data collection" (with a note about discouraged 'Yes' answers), "Hypothesis" (stating it's a fully exploratory study), "Research Question 1" (about attractive aspects of LivingLab), "Research Question 2" (about financial incentives), "Dependent variable" (listing DV1: Choice of Profile and DV2: Rating of each profile), "Contributors" (Hilmar Brohmer), "Description" (explaining the study's purpose), "Registration type" (Preregistration Template from AsPredicted.org), "Date registered" (July 10, 2022), "Date created" (July 10, 2022), and "Associated project" (osf.io/5r32p).



# Präreg im Paper:

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Hilmar Brohmer , [Katinka Munz](#), [Kathrin Röderer](#), [Christoph Anzengruber](#), [Matthias Wendland](#) & [Katja Corcoran](#)

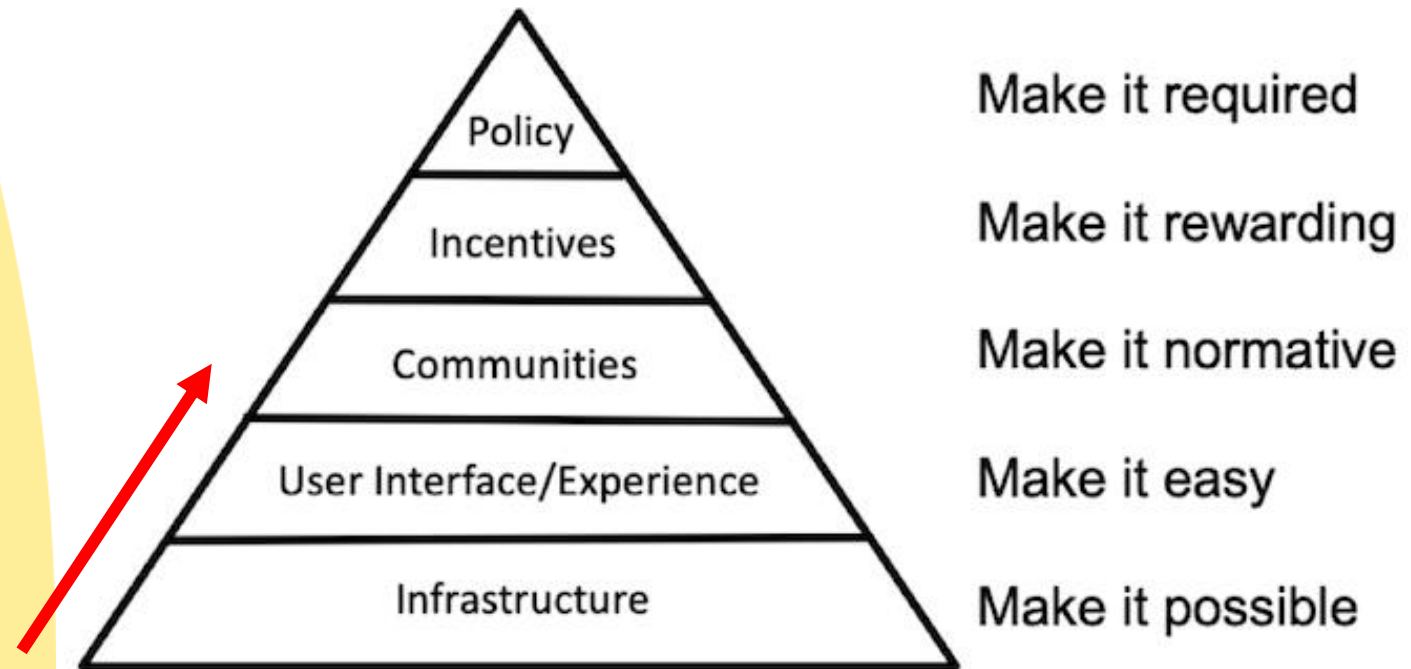
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**Ein Kulturwandel  
ist im Gange,  
aber er ist  
langsam**



Nosek, 2019, <https://www.cos.io/blog/strategy-for-culture-change>

Nosek et al., 2015, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4550299/>

# Community an der Uni Graz:

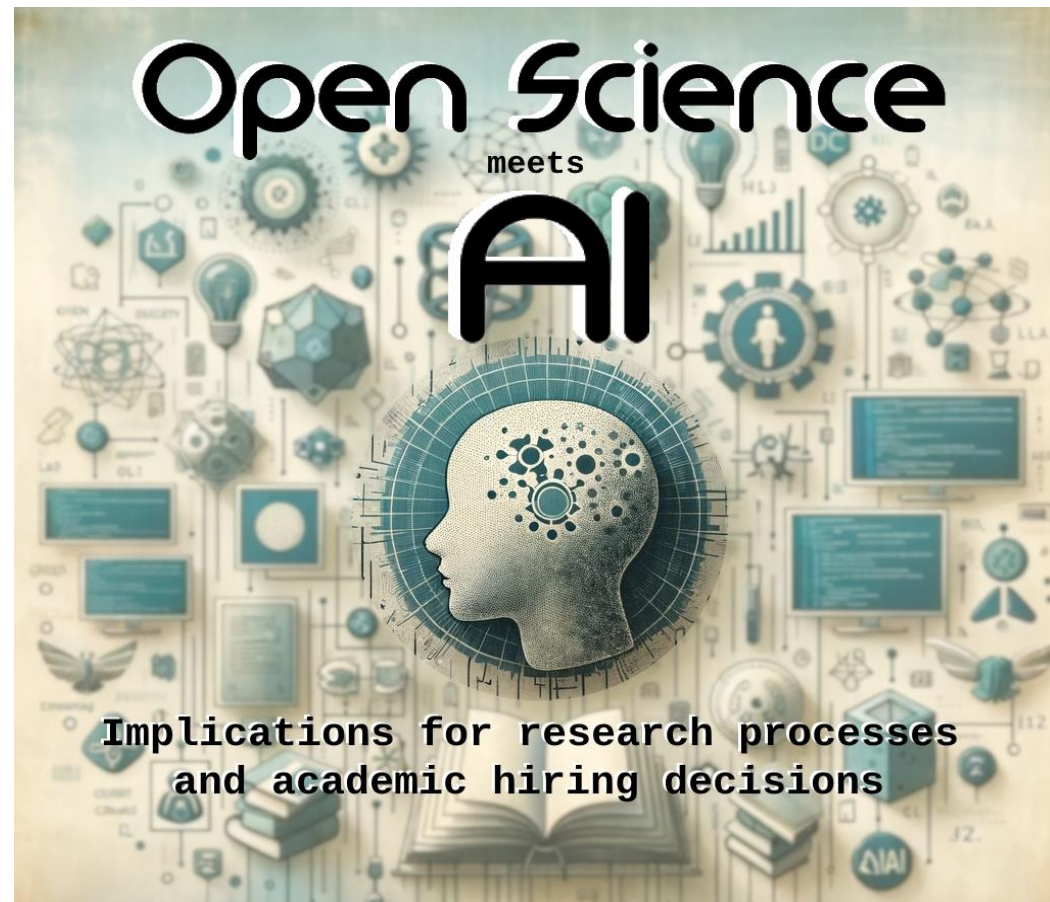
## GOSI

Welcome to the Graz OPEN SCIENCE Initiative!



We are researchers and students from all over Graz (Austria) and interested in Open Science and Open Access. Those two topics are relevant and will shape science and research in the 21st century.

Graz Open Science Initiative: <https://psychologie.uni-graz.at/de/sozialpsychologie/gosi/>



Implications for research processes  
and academic hiring decisions



with contributions from:



Prof. Jana  
Lasser  
(RWTH Aachen)



Prof. Horst  
Bischof  
(Rector TU Graz)



Dr. Anne  
Gärtner  
(TU Dresden)



Dr. Tony  
Ross-Hellauer  
(TU Graz)



Prof. Joachim  
Reidl (Vice-  
Rector Uni Graz)

when?

January 31  
2024, 3–5pm

where?

IDEA\_Lab  
Leechgasse 34  
8010 Graz

For whom?

Open to everyone!  
Register here:  
[tinyurl.com/OSxAIgraz](https://tinyurl.com/OSxAIgraz)



# Vielen Dank!

Fragen gerne an mich:  
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