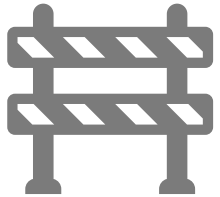
Navigating leadership in Open Science: challenges and strategies



Open Science Summer School 2026 (Track 2)

Dr Sara Lil Middleton (she/her)

Tuesday 15th September 2026: Session 2 and 3

OSC LMU Open Science Center FORRT

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Contribution statement

Creator: Middleton, Sara Lil (0000-0001-5307-8029)
Reviewer: Verheyen, Steven (0000-0002-6778-6744),
von Grebmer zu Wolfsthurn, Sarah (0000-0002-6413-3895)

Session 2 goals

Identify challenges in adopting Open Science practices and **examine** reasons behind them to raise awareness of possible barriers you and others may encounter.

To **distinguish** between challenges according to whether they occur at individual, interpersonal, institutional or systemic levels to practice a key problem-solving leadership skill.

Working through the 5A framework for navigating challenges

Session 2

Session 3

Post summer school

Awareness

Noticing challenges in non-judgmental way

Acknowledge

Naming challenges, recognizing context, multiple perspectives can co-exist

Agency

Identifying where you have influence to act

Action (address, advocate, approach others)

Taking concrete steps towards addressing challenges, connecting with others

Assess

Reflecting on actions taken: were they effective? Has my sphere of influence changed?

Working through the 5A framework for navigating challenges

Framework allows you to **practice** key leadership **skills** and **qualities**: self-awareness, empathy, knowledgeable, problem solvers, collaborative, flexibility

Steps shown linearly but in practice things are often not straightforward!

Awareness	Acknowledge	Agency	Action (address, advocate, approach others)	Assess
Noticing challenges in non-judgmental way	Naming challenges, recognizing context, multiple perspectives can co-exist	Identifying where you have influence to act	Taking concrete steps towards addressing challenges, connecting with others	Reflecting on actions taken: were they effective? Has my sphere of influence changed?

What challenges do you experience in implementing Open Science?

Awareness

1. Self **reflect**

2. **Write** down short phrases
or sentences on shared **white board**:
http://scrumblr.ca/Challenges_in_Open_Science

3. Group **discussion**

~10 minutes

Challenges in Open Science: Time

Time

e.g. Time constraints in a project to carry out a preregistration

Challenges in Open Science: Overwhelm

Time

Overwhelm

e.g. Competing demands

Challenges in Open Science: Incentive structures

Time

Incentive structures

e.g. Narrow research evaluation metrics like H-index

Overwhelm

Challenges in Open Science: Lack of training/skills

Time

Incentive structures

Overwhelm

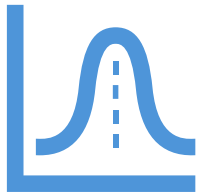
Lack of training/ skills

e.g. Training on how to make reproducible code

Challenges in Open Science: Norms and culture

Time

Incentive structures



Norms and culture

e.g. Different disciplinary norms and approaches to research

Overwhelm

Lack of training/ skills

Challenges in Open Science: Lack of support

Time

Incentive structures

Norms and culture

Overwhelm

Lack of training/ skills

Lack of support

e.g. Supervisor not supportive of making dataset open access

Challenges in Open Science: Restrictions/inflexibility

Time

Incentive structures

Norms and culture

Restrictions/ inflexibility

e.g. Data protections for human data or protected species

Overwhelm

Lack of training/ skills

Lack of support

Challenges in Open Science: Limited resources

Time

Incentive structures

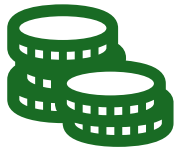
Norms and culture

Restrictions/ inflexibility

Overwhelm

Lack of training/ skills

Lack of support



Limited resources

e.g. Funding for article processing charges (APCs) to make research open access

Challenges in Open Science: Additional workload

Time

Incentive structures

Norms and culture

Restrictions/ inflexibility

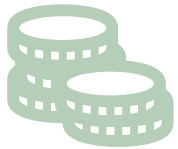
Additional workload

e.g. Large administrative workload in Big Team Science projects

Overwhelm

Lack of training/ skills

Lack of support



Limited resources

Challenges in Open Science: Career impact

Time

Incentive structures

Norms and culture

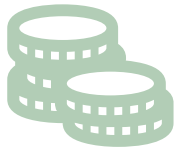
Restrictions/ inflexibility

Additional workload

Overwhelm

Lack of training/ skills

Lack of support



Limited resources

Career impact

e.g. Contributions to open source infrastructure is undervalued

Challenges in Open Science: Equity issues

Time

Incentive structures

Norms and culture

Restrictions/ inflexibility

Additional workload

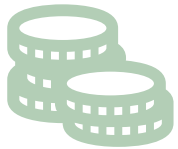
Equity issues

e.g. Data sovereignty (CARE principles: **C**ollective benefit, **A**uthority to control, **R**esponsibility and **E**thics)

Overwhelm

Lack of training/ skills

Lack of support



Limited resources

Career impact

Challenges in Open Science: AI technologies

Time

Incentive structures

Norms and culture

Restrictions/ inflexibility

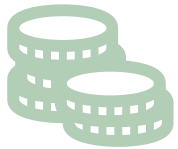
Additional workload

Equity issues

Overwhelm

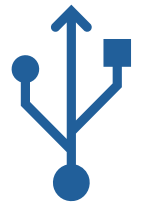
Lack of training/ skills

Lack of support



Limited resources

Career impact



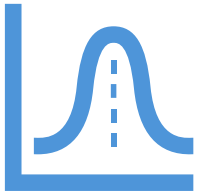
AI technologies

e.g. Hallucinated references

Challenges in Open Science

Time

Incentive structures



Norms and culture

Restrictions/ inflexibility

Additional workload

Equity issues

Overwhelm

Lack of training/ skills

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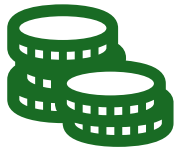
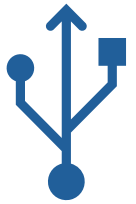


Limited resources

Career impact



AI technologies

See more: Gownaris et al. 2022

Challenges in Open Science

March 01 2023

The APC-barrier and its effect on stratification in open access publishing

Thomas Klebel, Tony Ross-Hellauer

Check for updates

Author and Article Information

Quantitative Science Studies (2023) 4 (1): 22–43.

https://doi.org/10.1162/qss_a_00245 **Article history**

PERSPECTIVE/OPINION | APRIL 29 2026

The Advantage of Big Team Science: Lessons Learned From Cognitive Science

Collections: Section: Methodology and Research Practice

David C. Vaidis, Jacob F. Miranda, Erin M. Buchanan, Yu Fang Yang, Marta Kowal, Kathleen Schmidt, Marta Topor, Michal Misiak, Rachael Miller, John Protzko, Biljana Gjoneska, Jeremy K. Miller, Anna Exner, Flavio Azevedo, Mariola Paruzel-Czachura, Faisal Mushtaq, Catia Oliveira, Jordan R. Wagge, Delphine De Moor, Niels G. Mede, Drew M. Altschul, Yuri G. Pavlov, Yashvin Seetahul, Leanne Boucher, Kimberly C. Doell, Ingmar Visser, Mahmoud M. Elsherif, Ekaterina Pronizius

Corresponding author: david.vaidis@univ-tlse2.fr

ronizius contributed equally and share the senior author position

us@univie.ac.at

Article history

RESEARCH ARTICLES | 06 JUL 2022

A survey on how preregistration affects the research workflow: better science but more work

Special Collection: Open science

Alexandra Sarafoglou ; Marton Kovacs ; Bence Bakos ; Eric-Jan Wagenmakers ; Balazs Aczel

+ Author & article information

R. Soc. Open Sci. (2022) 9 (7): 211997 .

https://doi.org/10.1098/rsos.211997 **Article history**

Review Article

Medicine

Eleven strategies for making reproducible research and open science training the norm at research institutions

Friederike E Kohrs, Susann Auer, Alexandra Bannach-Brown, Susann Fiedler, Tamarinde Laura Haven, Verena Heise, Constance Holman, Flavio Azevedo, René Bernard ... Tracey L Weissgerber see all »

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Nov 23, 2023 • https://doi.org/10.7554/eLife.89736

nature > news > article

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By Dalmeet Singh Chawla

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

Sarah W. Davies, Hollie M. Putnam, Tracy Ainsworth, Julia K. Baum, Colleen B. Bove, Sarah C. Crosby, Isabelle M. Côté, Anne Duplouy, Robinson W. Fulweiler, Alyssa J. Griffin, Torrance C. Hanley, Tessa Hill, Adriana Humanes, [...], Amanda E. Bates [view all]

Published: June 15, 2021 • https://doi.org/10.1371/journal.pbio.3001282

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Stephanie Russo Carroll, Edit Herczog, Maui Hudson, Keith Russell & Shelley Stall

Scientific Data **8**, Article number: 108 (2021) | Cite this article

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Correspondence | Published: 27 February 2023

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Nature Ecology & Evolution **7**, 626–627 (2023) | Cite this article

British Journal of Social Psychology — the british psychological society

EDITORIAL

Opportunities, challenges and tensions: Open science through a lens of qualitative social psychology

Madeleine Pownall, Catherine V. Talbot, Laura Kilby, Peter Branney

First published: 31 January 2023 | https://doi.org/10.1111/bjso.12628 | VIEW METRICS

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Open Science is happening across scales

The diversity of **pathways** to Open Science (e.g. research, education, policy, infrastructure) bring about different **conceptual**, **practical** and **equity** challenges.

Acknowledgement

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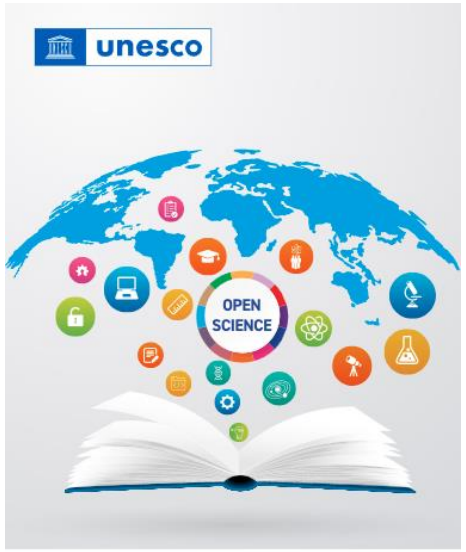
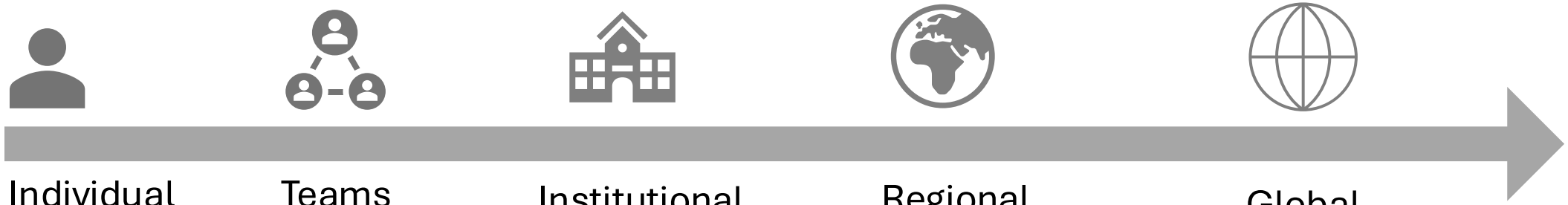
You





Open Science is happening across scales

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You

The **values**, **goals** and **standards**

How Open Science is
understood and **practiced**

UNESCO Recommendation on Open Science

Individual

Teams

Institutional

Regional

Global

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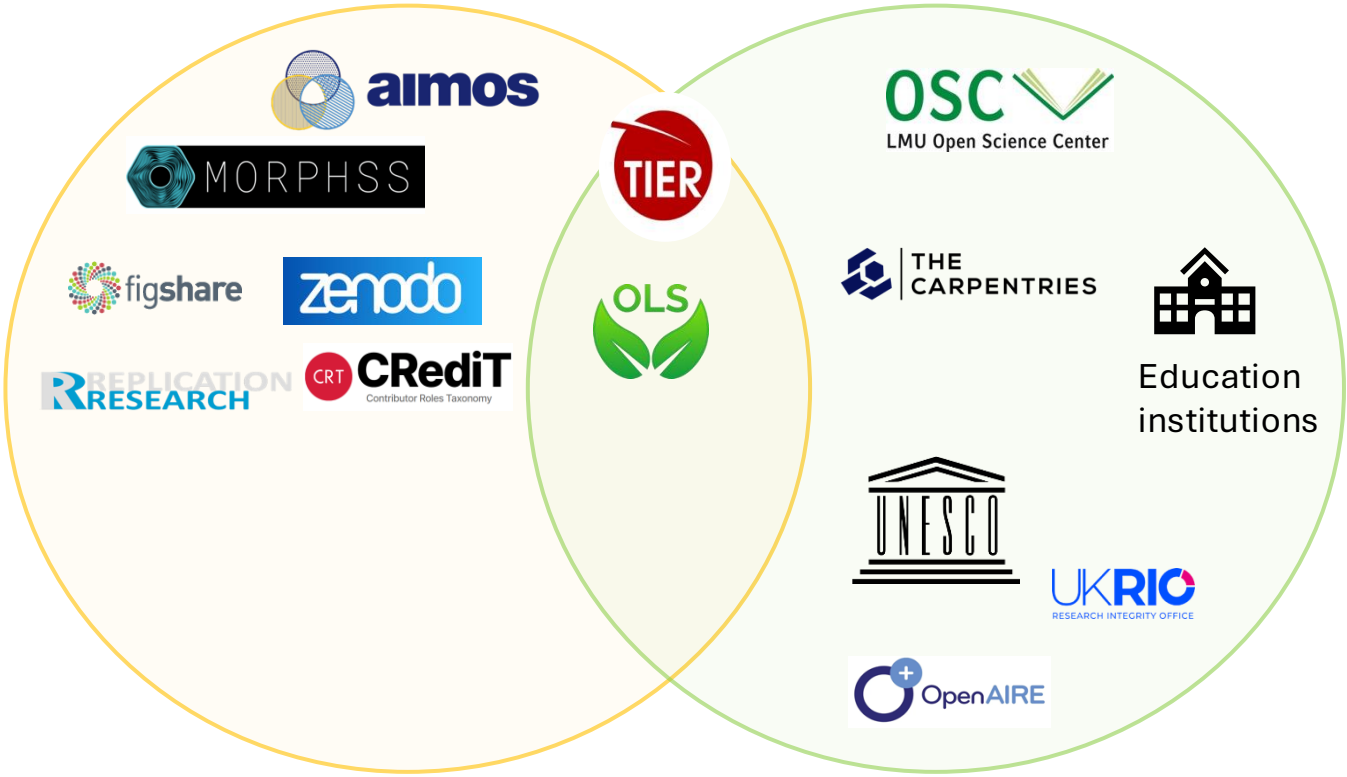
Challenges in Open Science: diversity of domains

Research & Scholarly communication

Challenges in Open Science: diversity of domains

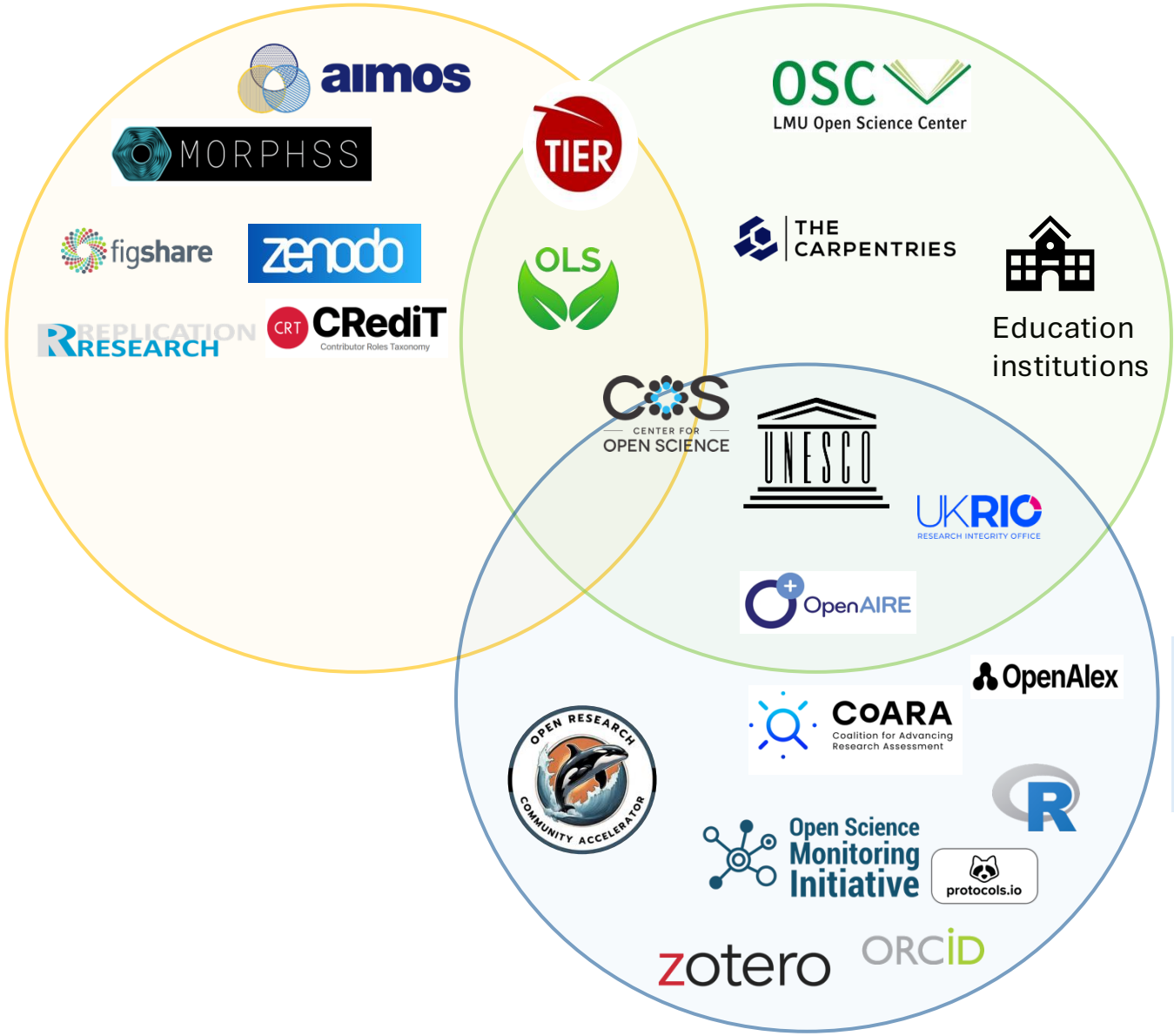
Research & Scholarly communication



Education & training

Challenges in Open Science: diversity of domains

Research & Scholarly communication



Education & training

Policy & infrastructure

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Challenges in Open Science: diversity of domains

Non-exhaustive list!

Research & Scholarly communication

Education & training

Community & networks

Policy & infrastructure

Business & Industry

See more here: https://amcm.shinyapps.io/openit/

A conceptual challenge in Open Science: terminology

‘Open Science’ means different things to people

5 Open Science schools of thought (Fecher & Friesike, 2014)

Democratic: Making knowledge freely available for everyone (e.g. open data, licensing)

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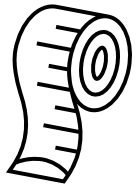

Measurement: Developing alternative metrics for success and impact (e.g. altmetrics, authorship)

A conceptual challenge in Open Science: terminology

Confusion and lack of shared context of terminology can **create barriers** for non-native speakers, knowledge transfer and interdisciplinary collaborations (Parsons et al. 2022).

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Acronyms

e.g. Orcid iD (Open Researcher and Contributor ID)

Metaphors

e.g. Garden of forking paths, salami slicing

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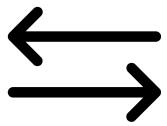
Additional meanings

e.g. Paper mills

- Factories manufacturing paper
- Organizations involved in science misconduct producing papers with falsified or fabricated data



Usage differences

e.g. Preregistration as a process and output (Mayo-Wilson et al. 2025), replication-reproducibility confusion

Creating new terms

e.g. #Bropenscience (Whitaker & Guest, 2020)

A practical challenge in Open Science: building accessible and sustainable infrastructure

There are **technical** and **organizational infrastructure** challenges in supporting researchers adopt Open Science practices across the research life cycle.

Research life cycle

Ihle et al. 2026

A practical challenge in Open Science: building accessible and sustainable infrastructure

There are **technical** and **organizational infrastructure** challenges in supporting researchers adopt Open Science practices across the research life cycle.

Stepping into the infrastructure school (Fecher & Friesike, 2014), practical issues:

- **Funding** for **development**
- **Monitoring** and **maintenance**
- **Governance**
- **FAIR (F**indability, **A**ccessibility, **I**nteroperability, and **R**euse)
- **Global forces** (e.g. geopolitics)

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Ihle et al. 2026

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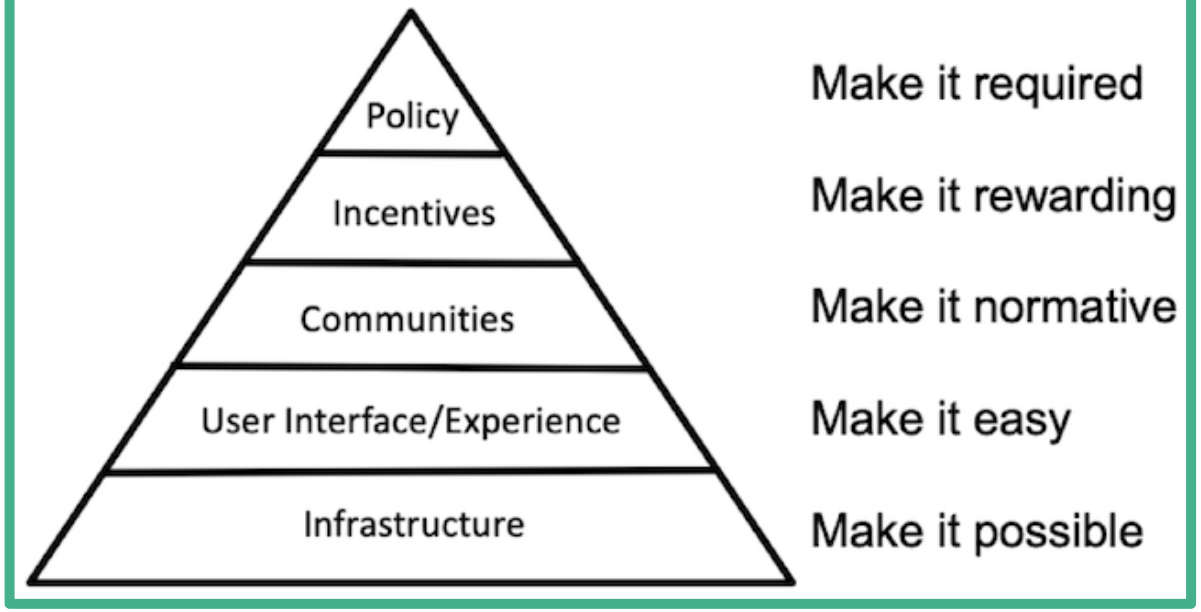
Culture change pyramid



Adapted from Nosek (2019)

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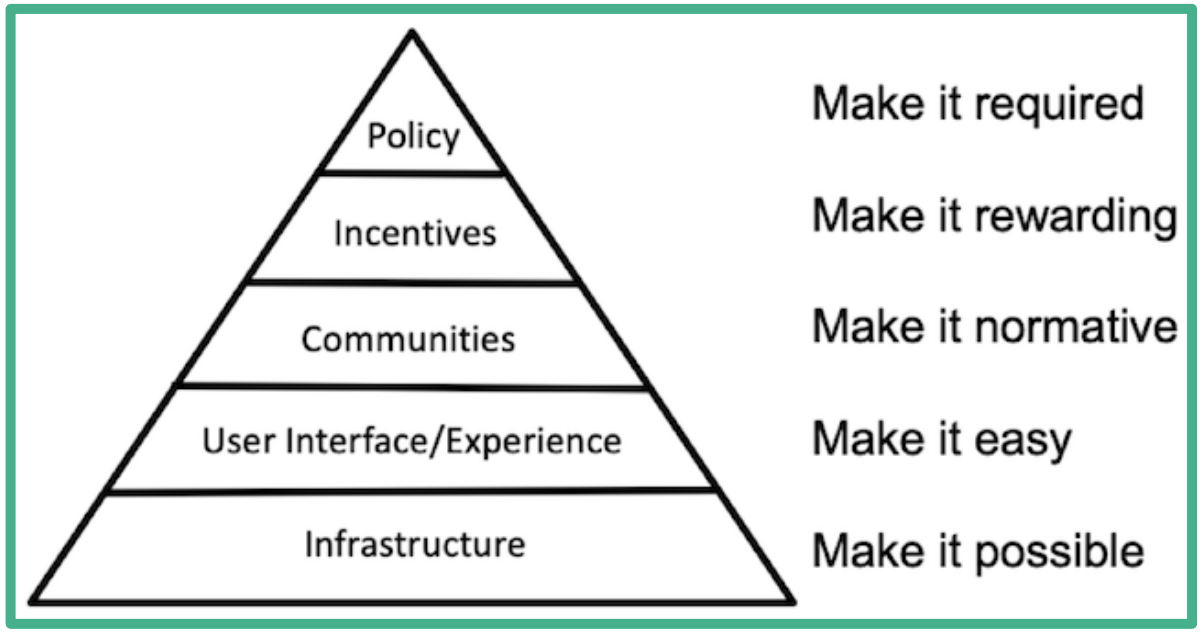
Note: Culture change pyramid has been critiqued due to overemphasis of infrastructure as a technical issue issue in Open Science.

Culture change pyramid



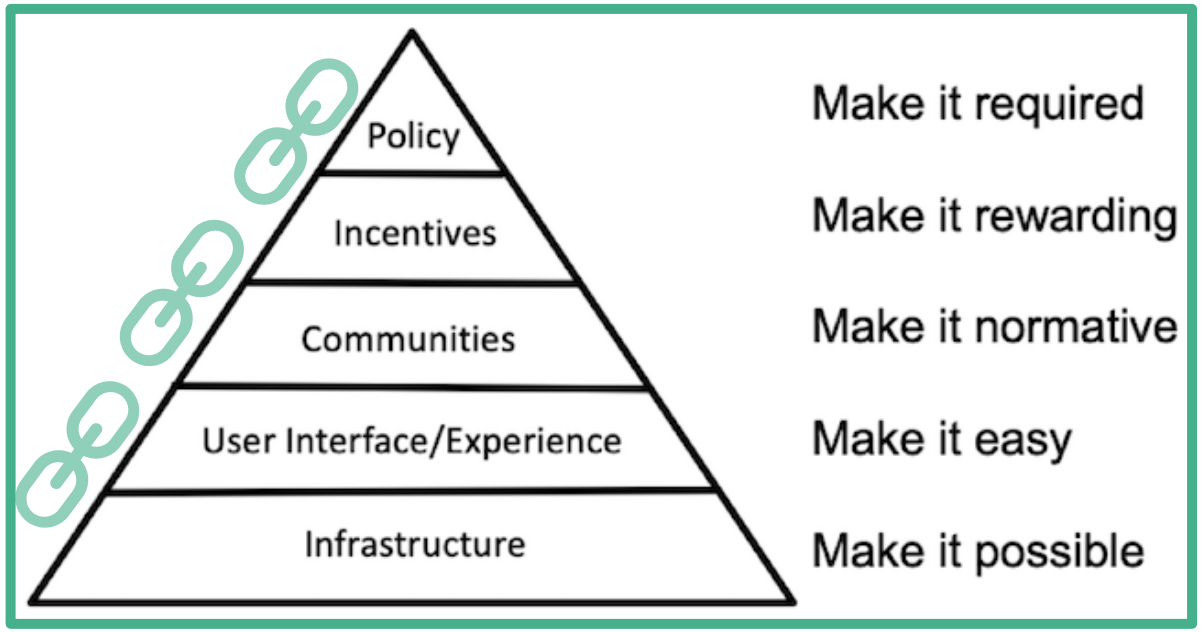
Adapted from Nosek (2019)

See Principles of Open Scholarly Infrastructure (POSI) https://openscholarlyinfrastructure.org/

A practical challenge in Open Science: Building organizational infrastructure

Building **organizational infrastructure** (e.g. **workflows, team structure, fora**, etc.) to foster communication and collaboration between domains and scales.

Culture change pyramid



Adapted from Nosek (2019)

A practical challenge in Open Science: Building organizational infrastructure

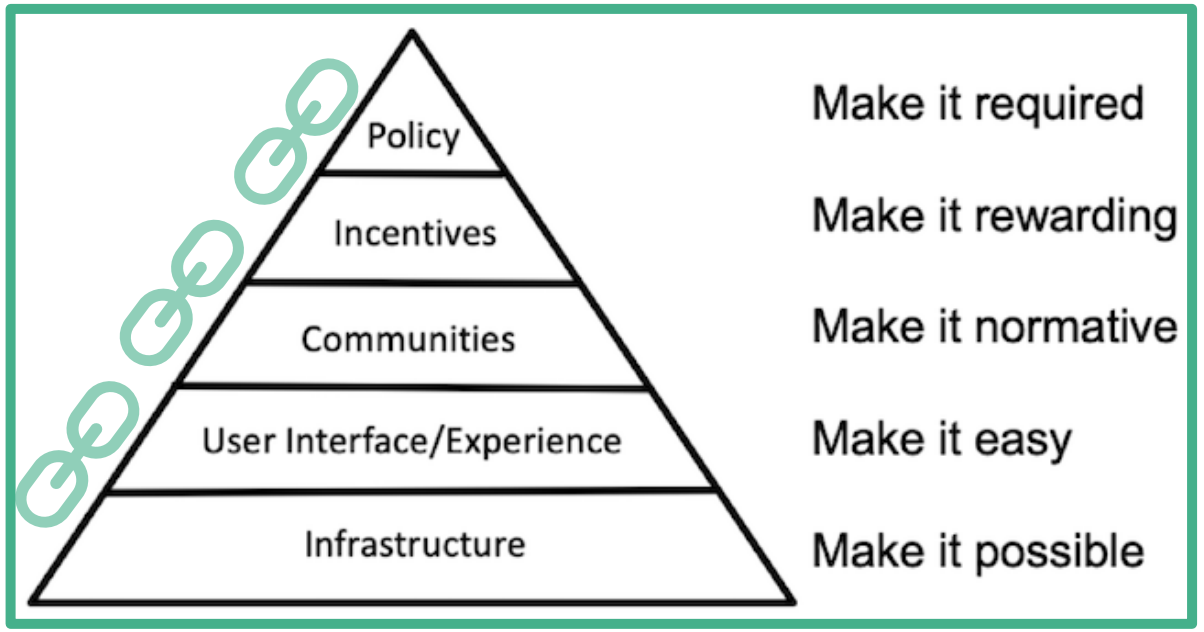
Building **organizational infrastructure** (e.g. **workflows, team structure, fora**, etc.) to foster communication and collaboration between domains and scales.

Practical issues:

- Navigating tensions
- **Recognition**
- Avoiding **duplicated efforts**
- **Regulations**
- **Digital divide**
- **Usefulness** and **effectiveness**

Think about all the technical tools or services you use on a daily basis in your work!

Culture change pyramid



Adapted from Nosek (2019)

Importance of sustainable infrastructure: The case of the Open Science Framework (OSF)

- The Open Science Framework (OSF) publicly launched in 2012 and as of 2026, has 1 million registered users!

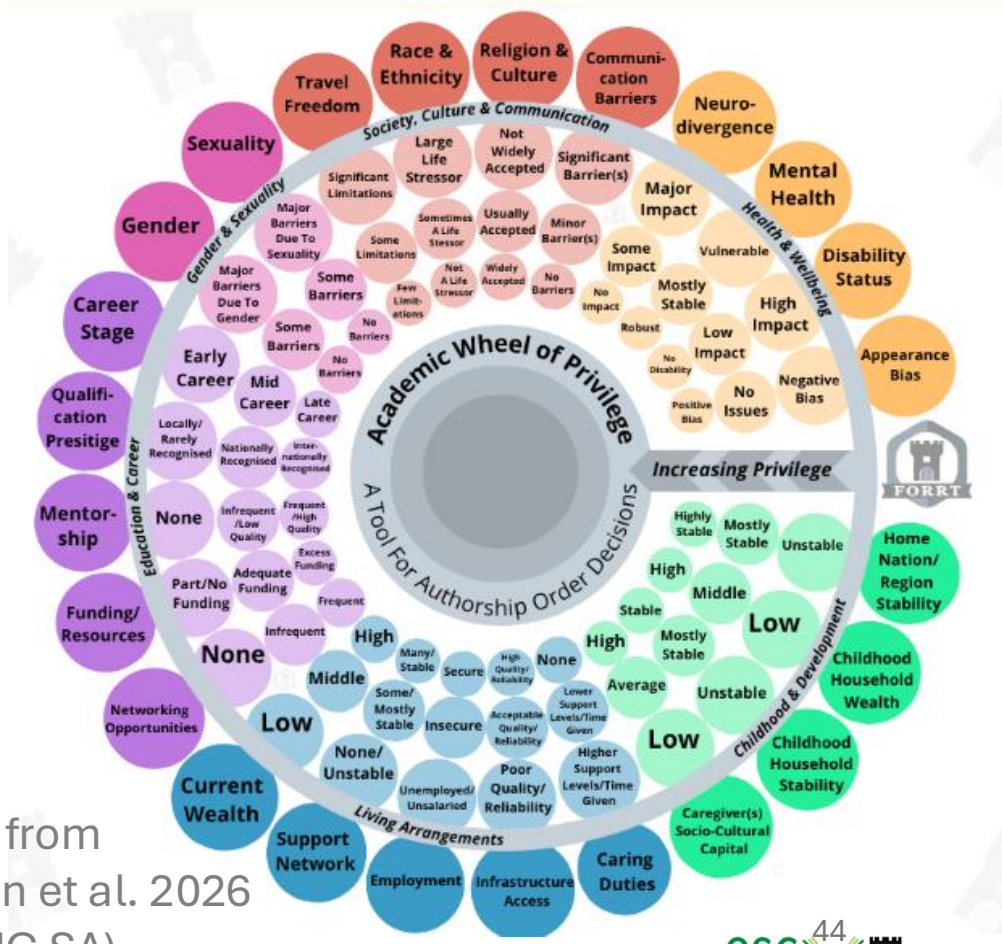
- A **centralized repository** and **research workflow platform** to support sharing of data and materials in collaborative teams

- From November 2026, OSF projects are to be phased out due to **increased maintenance costs** ($4-5 million USD per year), **decreased long term funding** and **scope creep** (Nosek, 2026).

Read more about the changes: https://www.cos.io/blog/osf-changes-a-note-to-users

Open Science challenges around equity: contributions, credit and capacity building

Not considering **equity** and **(social) justice,** risks **replicating** the **status quo** and perpetuating harm to **under-represented communities**.



Adapted from Middleton et al. 2026 (CC BY NC SA)

Equity = Fairness based on need
Justice = Transformation of the system by removing cause of inequity to ensure fairness for all

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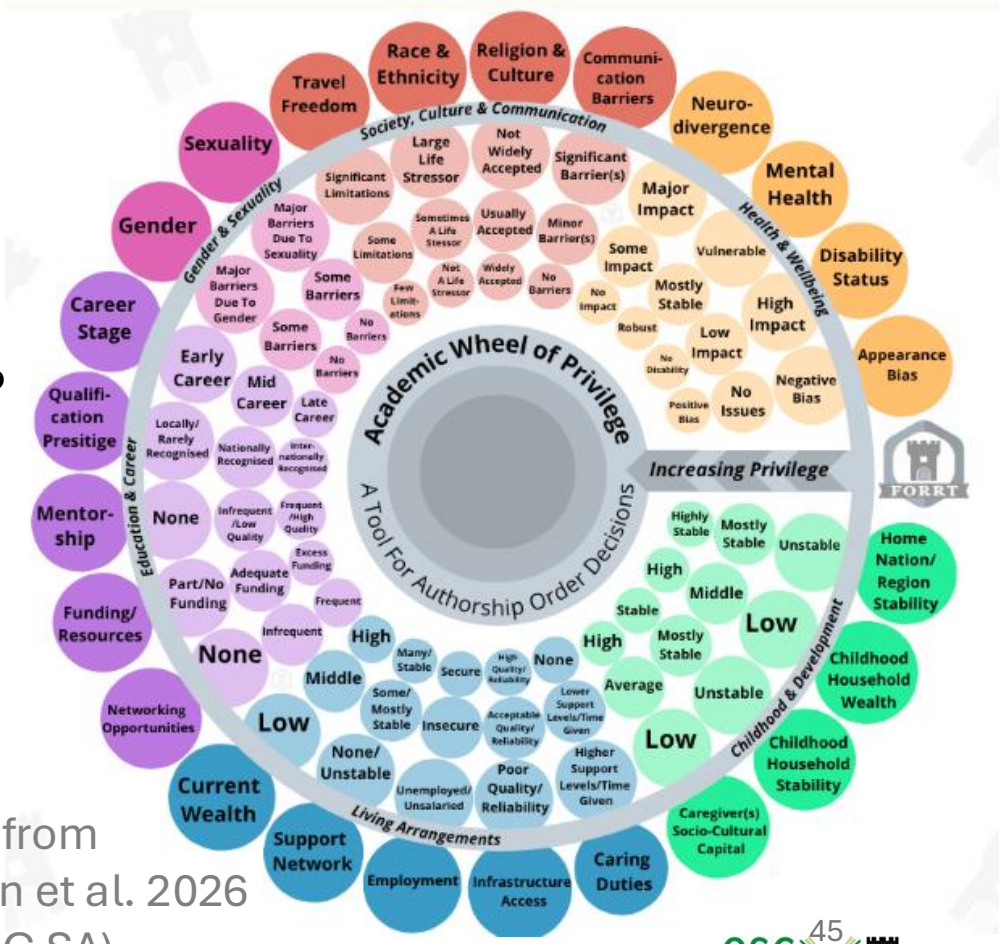
Open Science challenges around equity: contributions, credit and capacity building

Not considering **equity** and **(social) justice,** risks **replicating** the **status quo** and perpetuating harm to **under-represented communities**.

Equity issues:

- **Biases**
- Who decides the **standards**?
- Whose knowledge do we **value** and **acknowledge**?
- How are people from **under-represented communities impacted**?

Equity = Fairness based on need
Justice = Transformation of the system by removing cause of inequity to ensure fairness for all



Adapted from Middleton et al. 2026 (CC BY NC SA)

FAIR data management also needs CARE

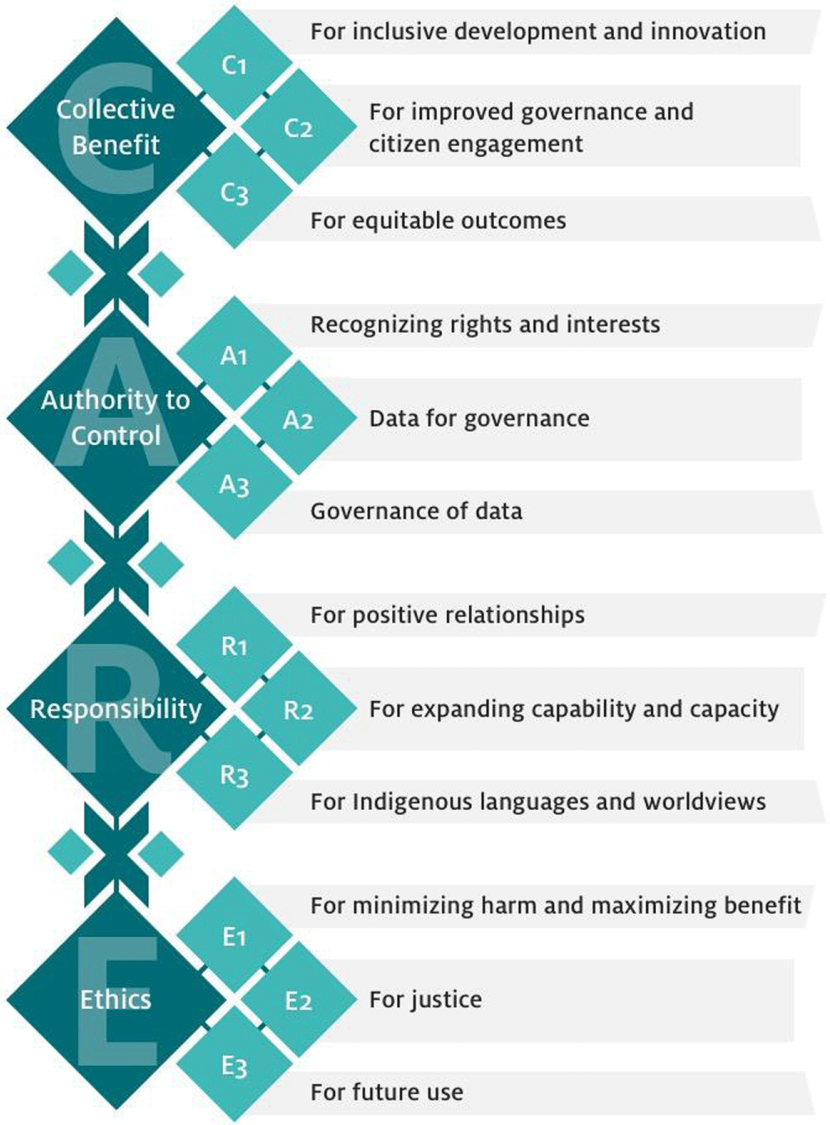


Image from Carroll et al. (2020)

FAIR asks: Are people able to access and reuse these data?
Technical infrastructure focus

CARE asks: Should these data be accessible and to whom? Who decides?
Equity and ethics focus

Consider CARE Principles when working with:

- Indigenous communities
- Vulnerable or marginalized communities

FAIR = Findable, Accessible, Interoperable and Reusable
CARE = Collective Benefit, Authority to Control, Responsibility, and Ethics

Open Science challenges around equity and (social) justice

Gender & Society
OnlineFirst

https://doi.org/10.1177/08912432261466293

Sage Journals

Article

Women as the First Open Scientists: Five Stories of the Neglected Contributions of Women in (Social) Science Reform History

Madeleine Pownall

Perspective | Open access | Published: 29 January 2025

A manifesto for a globally diverse, equitable, and inclusive open science

Sakshi Ghai, Rémi Thériault, Patrick Forscher, Yuichi Shoda, Moin Syed, Arathy Puthillam, Hu Chuan Peng, Dana Basnight-Brown, Asifa Majid, Flavio Azevedo & Leher Singh

Communications Psychology **3**, Article number: 16 (2025) | Cite this article

See OSC training module on citation politics:
https://lmu-osc.github.io/train-the-trainer-student-track-pedagogy/materials/PMM-M4/PMM-M4-S3-Citation-Politics/PMM-M4-S3-Citation-Politics.html

Advances in Methods and Practices in Psychological Science
Volume 8, Issue 3, July 2025

https://doi.org/10.1177/25152459251357565

Sage Journals

General Article

Open Science in the Developing World: A Collection of Practical Guides for Researchers in Developing Countries

Hu Chuan-Peng [1,2], Zhiqi Xu [3], Aleksandra Lazić [4], Piyali Bhattacharya [5], Leonardo Seda [6,7], Samiul Hossain [8], Alma Jeftić [9,10], Asil Ali Özdoğru [11], Olavo B. Amaral [12], Nadica Miljković [13,14], Zlatomira G. Ilchovska [5,15], Ljiljana B. Lazarevic [4], Han Wu Shuang Bao [16,17], Nikita Ghodke [18], David Moreau [19,20], Mahmoud Elsherif [5,21], Chinchu C. [22,23], Sakshi Ghai [24], Clarissa F. D. Carneiro [11,25], Danka Purić [4], Yin Wang [26], Mirela Zaneva [27], Felipe Vilanova [28,29], Iris Žeželj [4], Obrad Vučkovac [30], Saida Heshmati [31], Pooja Kulkarni [32], Nadia Saraí Corral-Frías [33], Juan Diego García-Castro [34,35], Shubham Pandey [36,37], Jamal Amani Rad [38], Thipparapu Rajesh [39], Bita Vahdani [40], Saad Almajed [21,41], Amna Ben Amara [42], Leher Singh [43], Ali H. Al-Hoorie [44], Marcelo Camargo Batistuzzo [6,45,46], Daniel Fatori [6,47], Frankie T. K. Fong [48,49], Zahra Khorami [21], Joseph Almazan [50], Biljana Gjoneska [51], Meng Liu [52], and Flavio Azevedo [53]

Cite Black Women: A Critical Praxis (A Statement)

Christen A. Smith [1], Erica L. Williams [2], Imani A. Wadud [3], Whitney N. L. Pirtle [4], & The Cite Black Women Collective [1]

1 The University of Texas at Austin
2 Spelman College
3 University of Kansas
4 University of California, Merced

Corresponding author: The Cite Black Women Collective; e-mail: citeblackwomen@gmail.com

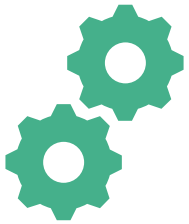
OSC LMU Open Science Center FORRT

Challenges in Open Science: AI technologies

Rapid usage of artificial intelligence (**AI) technologies** throughout the **research life cycle** presents **conceptual, practical** and **equity challenges**

Ambiguity around AI **terminology** (e.g. large language models vs chatbots).

Implications for scientific understanding?



Large volume of AI-generated work affecting the **evaluation** of research outputs.

Implications for preprint servers, peer review, funding panels?

AI reduces **engagement** (e.g. **outsourcing** questions to AI chatbot vs talking with an expert).

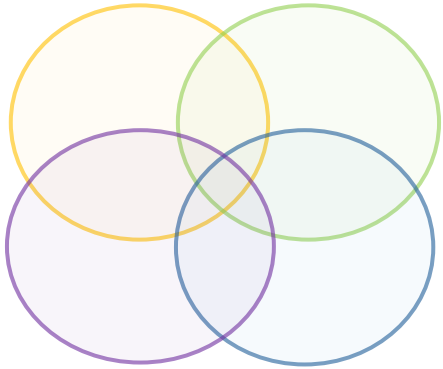
Implications for value of human expertise, team dynamics?

Guest et al. 2026, Hao et al. 2026

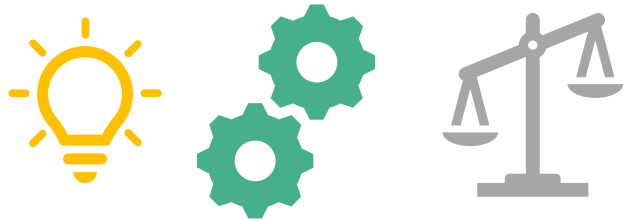
Recap on Open Science challenges

We've Identified challenges in adopting Open Science practices

and **examined** some reasons behind them



Diversity of domains



Conceptual, practical and equity challenges

What does leadership in Open Science/Scholarship mean to you?

Richard Dushime Mudahera

Data Science at University of Messina

Website Lead at FORRT (Framework for Open and Reproducible Research Training)

"Leadership in Open Science means **building** the roads others can travel and ensuring those roads remain open.

It means **creating transparent**, **community-owned** infrastructure that makes sharing data, reproducing results, and collaborating across institutions **accessible** and **sustainable**.

True leadership is **not about visibility**; it is about **creating** the **conditions** where **openness** becomes the default from Day 1."

The scale of the challenges

Systemic

Whole systems (e.g. academic ecosystem)

Institutional

Embedded policies/practices that provide scaffolding of systems

Inter-personal

Interactions and behaviors between people and teams

Individual

Personal behaviors

Note:
Identifying which scale the challenge is -> addressing it

The scale of the challenges

Systemic

Incentive structures

Institutional

Lack of support

Inter-personal

Lack of training/ skills

Individual

Time

Note:
Challenges don't always fit neatly onto the scale!

Sphere of influence

Which challenges are in our control or influence to address?

Agency

Reflection question:
For a given challenge, am I able to address it by myself or can I partly influence (via my actions and behavior) how the challenge impacts me?

Where is our sphere of influence?

Systemic

Institutional

Inter-personal

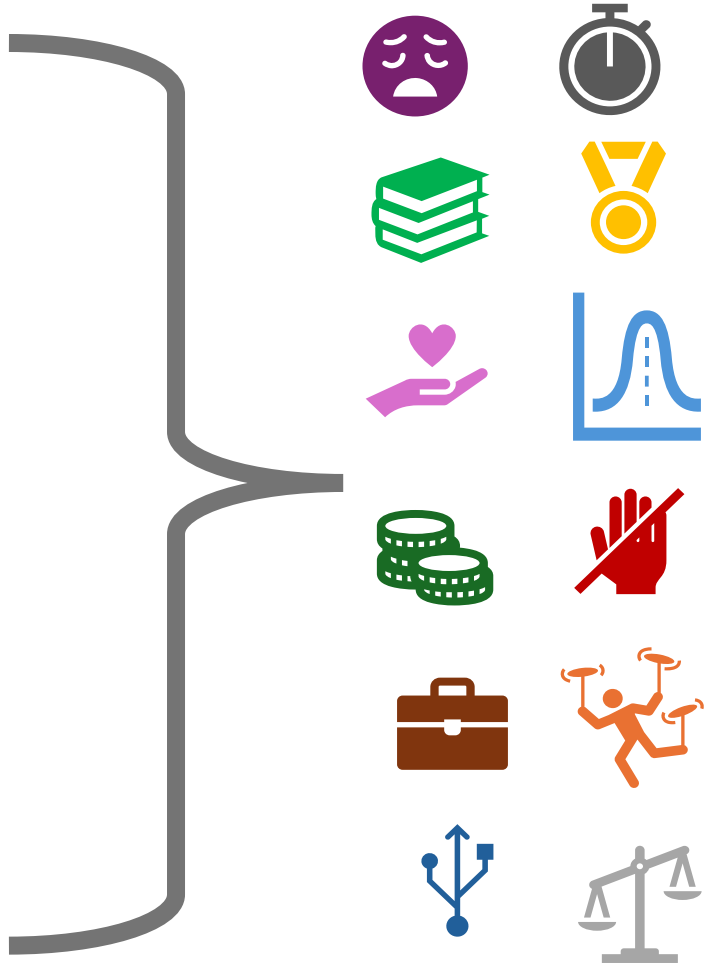
Individual

We generally have more control and influence for challenges at this scale

To act or not to act?

Categorizing the list of challenges can help us with **decision making** and **reduce overwhelm**!

Scale of challenge	Level of control/influence over challenge	
	Partly within my control/influence	*Outside* my control/influence
	Stay aware 👀	***Acknowledge and let go*** 🏄
Systemic *(e.g. the academic ecosystem)*		
Institutional *(e.g. your institution or organisation)*		
	Within my control/influence	*Outside* my control/influence
	Act, address and advocate 📣	***Acknowledge and assess later*** 🔁
Interpersonal *(e.g. your colleagues, team mates, students)*		
Individual *(yourself)*		



Exercise in mapping our challenges

Scale of challenge	Level of control/influence over challenge	
	Partly within my control/influence	*Outside* my control/influence
	Stay aware 👀	***Acknowledge and let go*** 🚮
Systemic *(e.g. the academic ecosystem)*		
Institutional *(e.g. your institution or organisation)*		
	Within my control/influence	*Outside* my control/influence
	Act, address and advocate ✍️	***Acknowledge and assess later*** 🔁
Interpersonal *(e.g. your colleagues, team mates, students)*		
Individual *(yourself)*		

1. **Write** down a couple Open Science challenges in your workbooks section 8.1

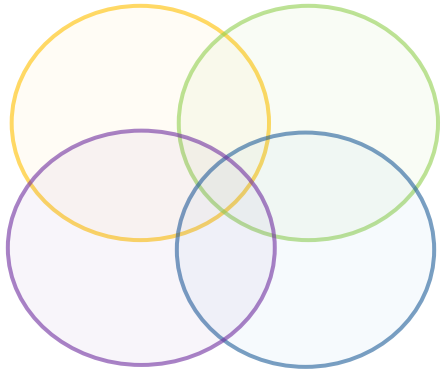
2. For each challenge, **categorize** them into the grid (use the reflection question to help you in section 8.2)

3. **Extension:** For one challenge in the green zone set out a **next step** to address the challenge

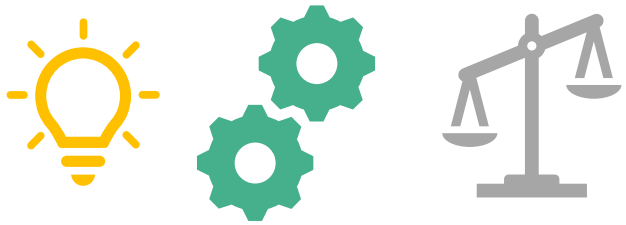
~8 minutes

Reflection question:
For a given challenge, am I able to address it by myself or can I partly influence (via my actions and behavior) how the challenge impacts me?

Final summary



How Open Science is **understood** and **practiced** differs across the domains (e.g. a student vs policymaker)

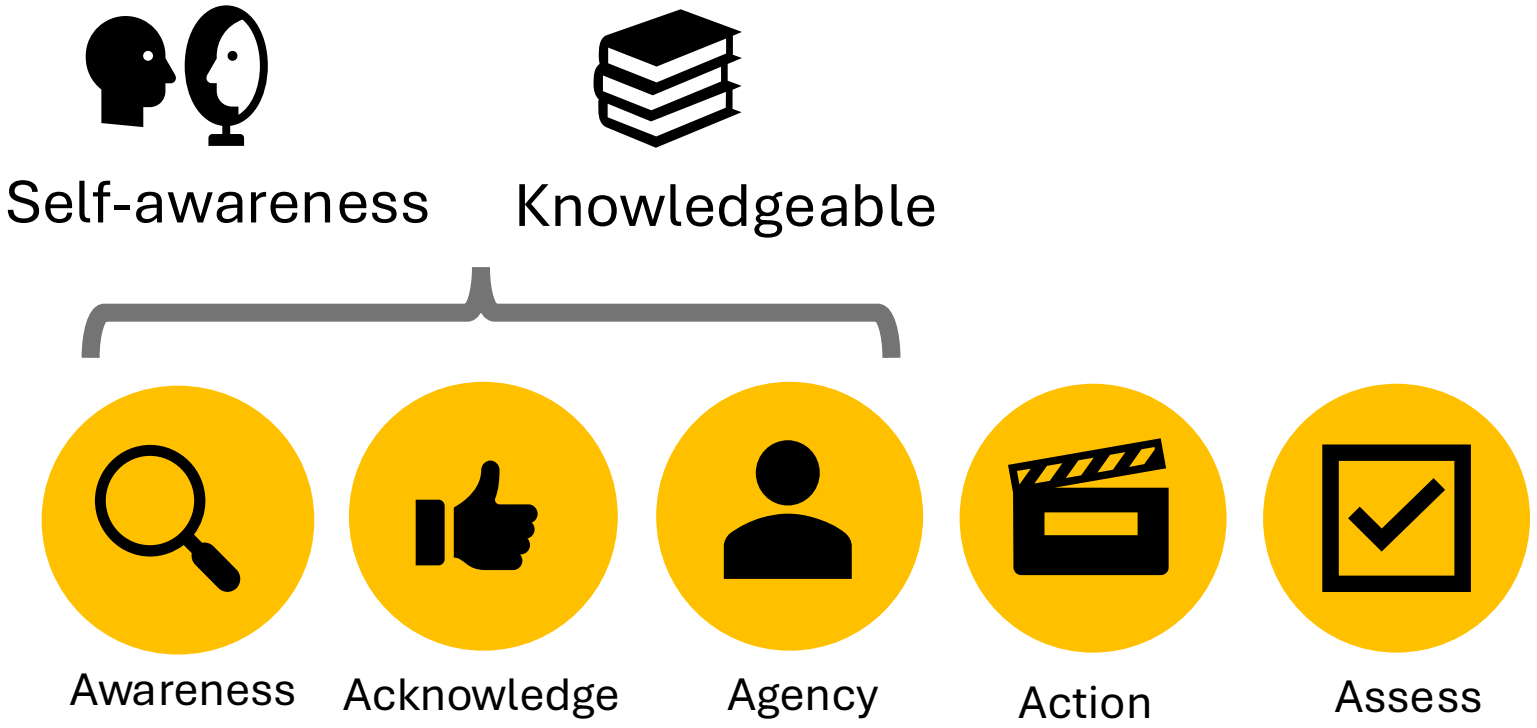


Conceptual, **practical** and **equity challenges** remain in Open science (e.g. terminology, infrastructure and credit)

Mapping challenges and identifying **sphere of influence** is a step towards addressing barriers

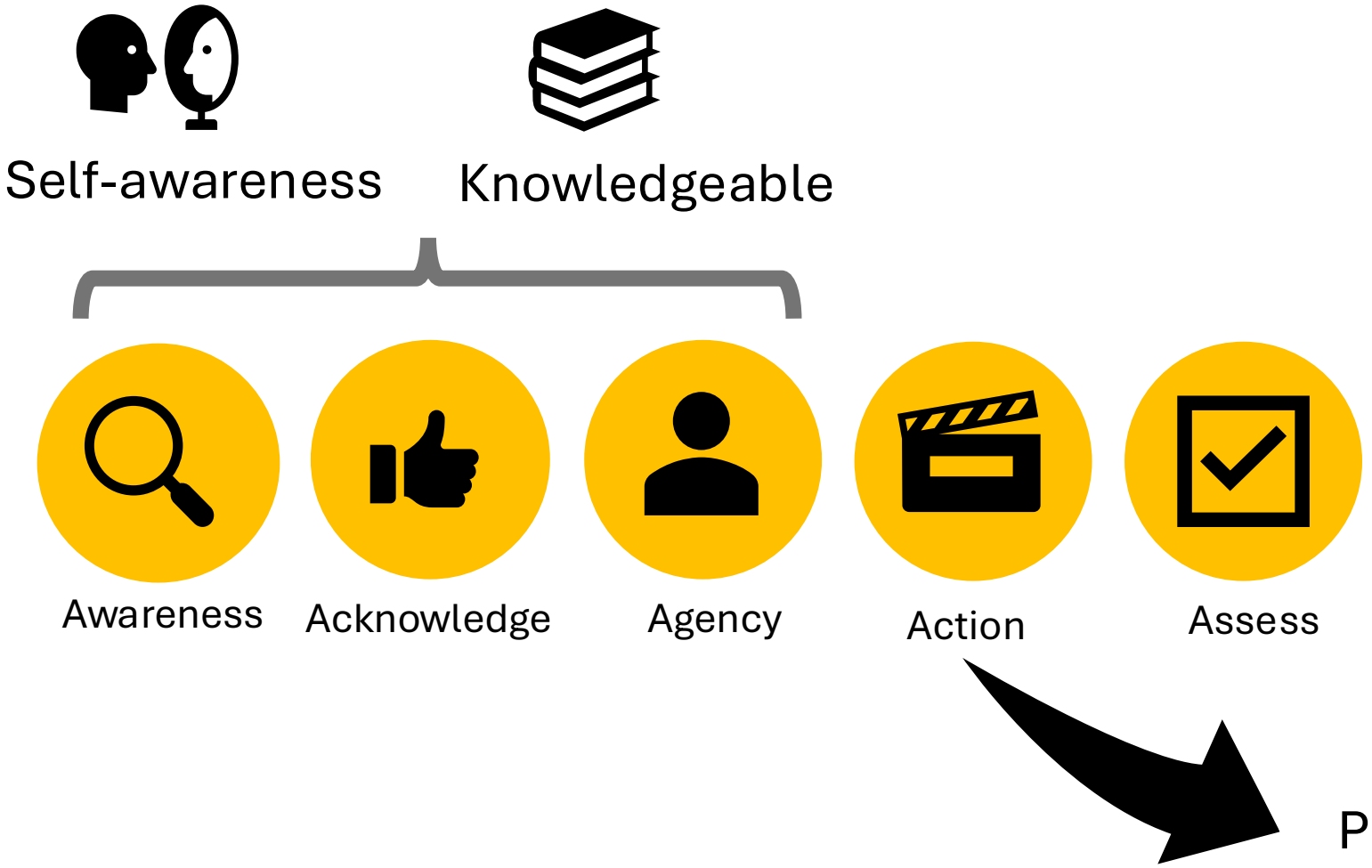
Leadership qualities we practiced

Using the 5A framework we worked on increasing our **self-awareness** and **knowledge**



Leadership qualities we practiced

Using the 5A framework we worked on increasing our **self-awareness** and **knowledge**



In the next session we will work on:

Problem solving

Collaboration

What does leadership in Open Science/Scholarship mean to you?

Prof. Brian Nosek

Co-founder and Executive Director of the Center for Open Science (COS)

Professor of Psychology, University of Virginia

"Leadership in Open Scholarship means adopting behaviors that **prioritize "getting it right"** over "being right".

Leadership in Open Scholarship means **pursuing transparency** to open **oneself** to scrutiny, foster **reuse**, and **promote public knowledge**.

Leadership in Open Scholarship means trying to live the **ideals** of scholarly research in **one's daily practice**."

Questions, bingo card and knowledge tree time

Find an accountability buddy	Draft a section in your open research workshop design workbook	Care for your peers	Recall Bloom's Taxonomy levels
Describe the most important thing you learned	Learn from each other	Pick a concept, activity or skill you are most excited about using	Reflect
Ask a question	Identify two shared values of "good" leadership and open research	Free choice!	Chose an open research topic to deliver a workshop/ seminar/class on
Care for yourself	Identify a challenge/barrier of being a leader in open research and a possible solution	Document	Interact with facilitators

Bingo card

Knowledge tree

https://tinyurl.com/OSKnowledgeTree

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Richard Dushime Mudahera
Brian Nosek

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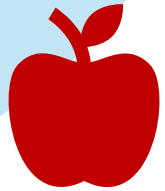
Lunch time

11:45-13:15 CEST



Next up: Navigating leadership in Open Science: strategies

Navigating leadership in Open Science: strategies

Open Science Summer School 2026 (Track 2)

Dr Sara Lil Middleton (she/her)

Tuesday 15th September 2026: Session 3

OSC LMU Open Science Center FORRT

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Contribution statement

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Reviewer: Verheyen, Steven (0000-0002-6778-6744),
von Grebmer zu Wolfsthurn, Sarah (0000-0002-6413-3895)

Session 3 goals

Examine approaches to addressing challenges in Open Science from multiple perspectives to increase breadth of knowledge.

Discuss and **propose** actionable and equitable strategies to address challenges in Open Science as a way to **relate** to own leadership contexts and build up collective problem-solving skills.

Check-in with cats

Which cat best describes your current mood?

Scan QR code:

Join:

https://www.menti.com/aleoq93346x6

Source: r/MedievalCats

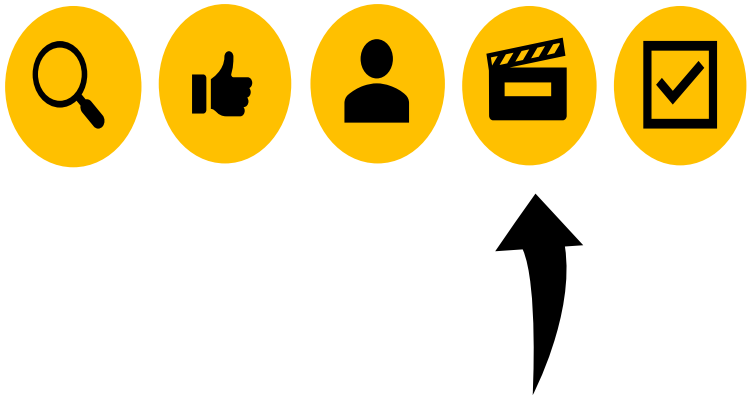
Quick recap

Looked at **what** and **why** of some challenges in Open Science

Identifying **sphere of influence** to address challenges

Scale of challenge	Level of control/influence over challenge	
	Partly within my control/influence	*Outside* my control/influence
	Stay aware 👀	***Acknowledge and let go*** 🚮
Systemic *(e.g. the academic ecosystem)*		
Institutional *(e.g. your institution or organisation)*		
	Within my control/influence	*Outside* my control/influence
	Act, address and advocate 👉	***Acknowledge and assess later*** 🔁
Interpersonal *(e.g. your colleagues, team mates, students)*		
Individual *(yourself)*		

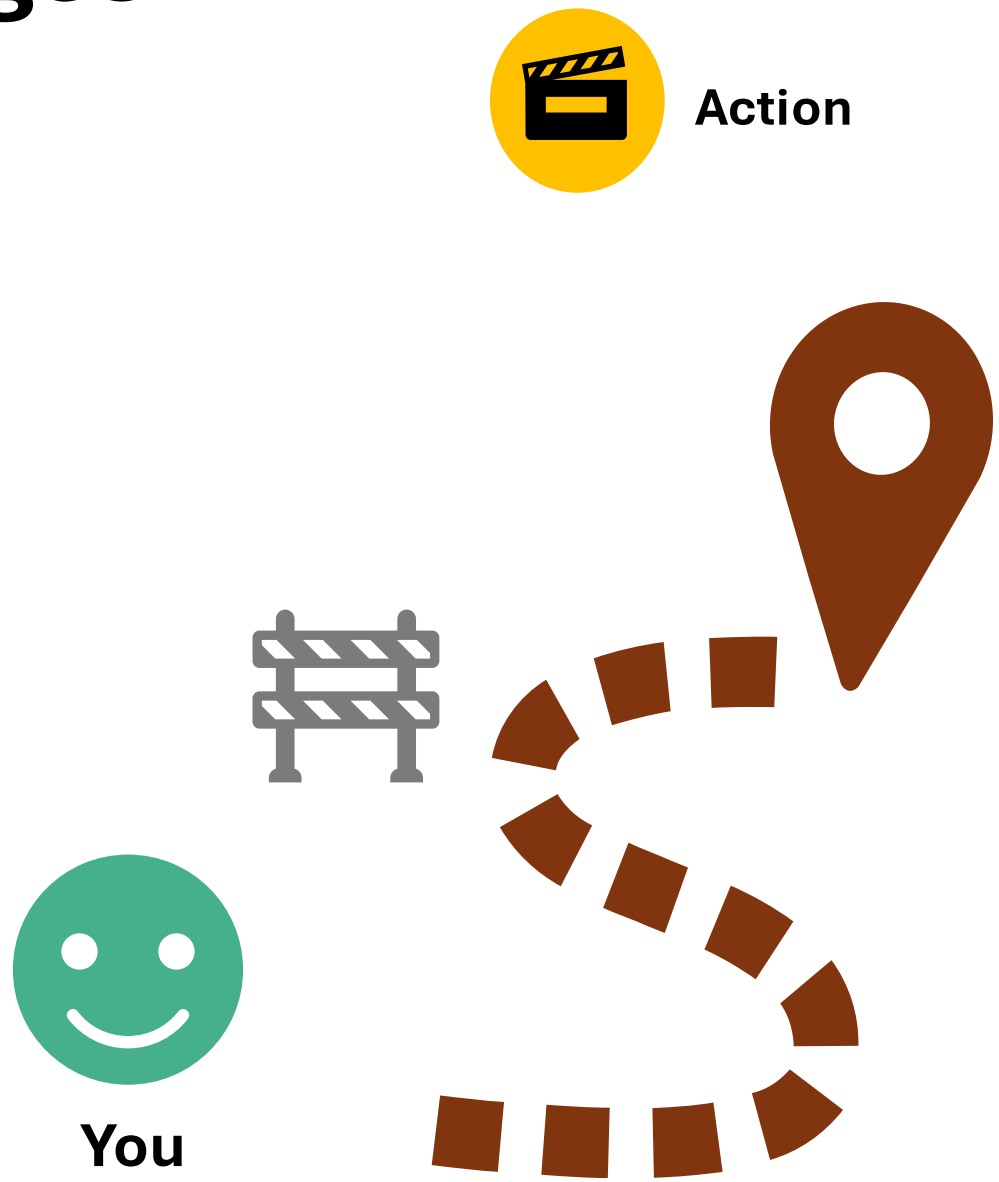
Following the **5A framework** for **addressing challenges**: awareness, acknowledge, agency, action and assess



We're at the **action** stage now

Ways to approach challenges

- First start by thinking about **general approaches** before we **apply** to the **group case study** activity
- You can keep in mind the challenges you have written down from sphere of influence activity



Ways to approach challenges: location

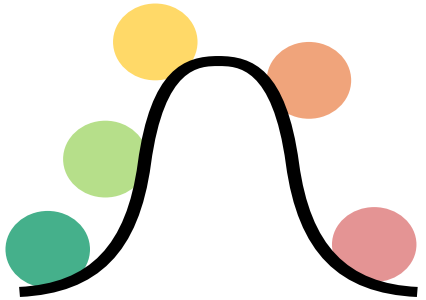
Consider the **context** you are in. Locate the **scale**, **domain** and your social **position.**

Which **scale**?

Which **domain(s)**?

Where in the **research life cycle**?

Adopter type?



What is my **positionality**?

Ihle et al. 2026; Rogers, 1983; Middleton et al. 2026

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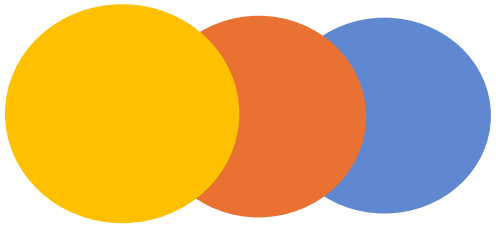
Ways to approach challenges: connect, communicate and collaborate

Spend some time to **connect** with **yourself** and **others.**

Connect with your **values**



e.g. what is important to you?

Collaborate with peers and find or form **community**

e.g. in your department, learned society, early career network

Clear **communication** and build a **shared vocabulary**

e.g. Co-create a group charter or glossary for a project

Ways to approach challenges: small steps

Take small actions within sphere of **influence**, **capacity**, **resources** and **time** constraints

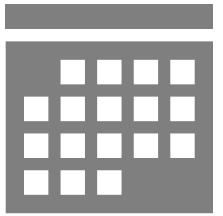
Take **action** in your sphere of influence/impact

e.g. What things can I influence/control in a situation?

"Open Science Buffet" approach within your **capacity** and **resources**

Bergmann (2023)

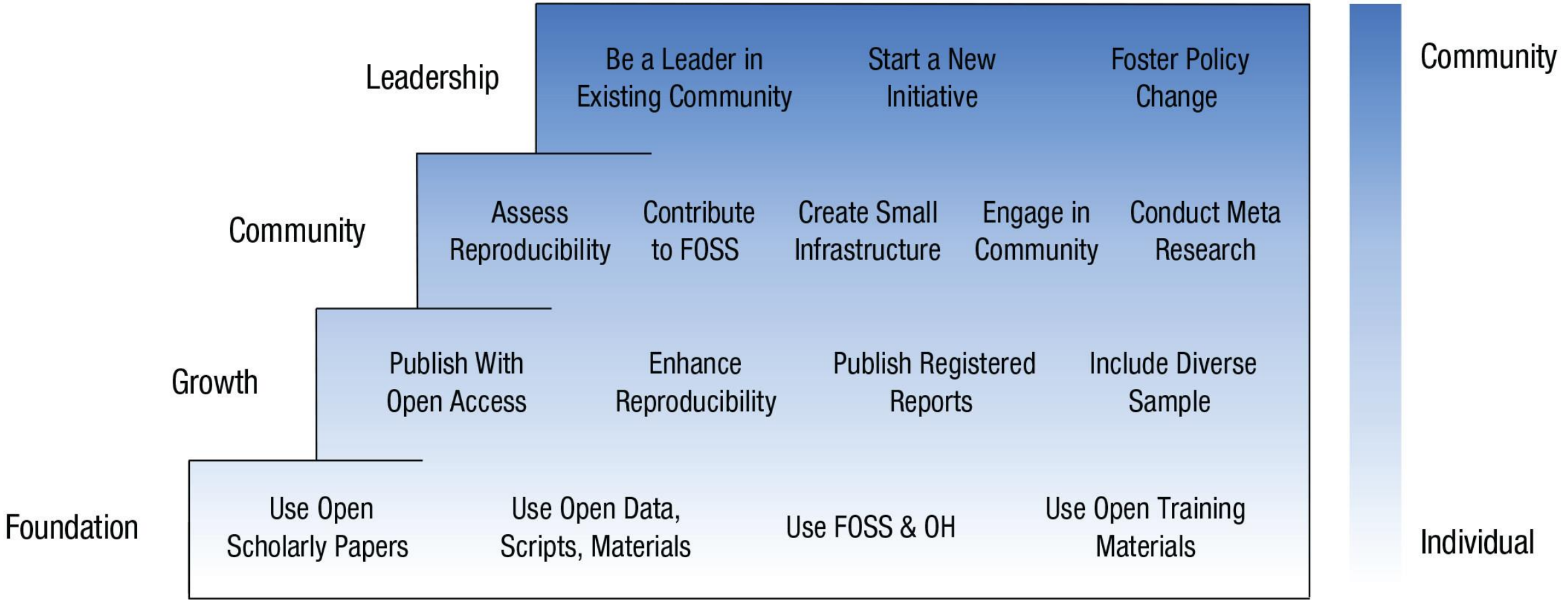
Identify what can be done **now** and what **can wait**



e.g. can I send that email today?

Small steps: from individual actions to community efforts

A practical guide for engaging in Open Science by Chuan-peng et al. (2025), with a focus on researchers from developing countries.



FOSS = Free and open-source software, OH = Open hardware

Equity embedded not as an add-on in Open Science

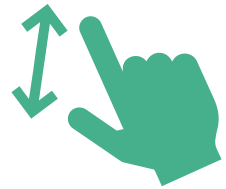
Recognize the **diversity** of capacities, knowledge systems and values of researchers

e.g. Openness and flexibility to different ways of working, establish multiple ways to contribute

Consider how your **actions impact** those from under-represented communities

e.g. Using inclusive language

Advocate for **broader metrics** for evaluating impact



e.g. More than H-index. What counts as rigorous research?

One-size-doesn't-fit-all

e.g. Challenge binary ways of thinking, adopt and adapt recommended practices to context

Read more about equity in Open Science in the Munich Manifesto for Equitable Open Research (PHIL_OS, 2026): https://zenodo.org/records/20700870

Interim summary

Ways to take action: **locate** scale and domain of challenges, **connect** inwards and with others, start with **small steps**, embed **equity.**

Location

Map out where the challenges are and your relationship to them

Connect

Check-in with yourself and connect with others

Small steps

Breakdown challenges into manageable steps

Equity

Consider equity as central part of practice and not as an optional addition

Using case studies to apply the 5A framework

- Case studies are a great **reflective** exercise (Toogood, 2023).
- Allows you to **combine** learned **theory** and **personal experiences** to problem-solve scenarios that resemble real-world examples!
- Can be done individually, small groups or larger groups.
- Helps **relate** to own leadership contexts and build up (collective) **problem-solving skills**.

Next: Example case study as a larger group -> case study in small groups

Case study: building a cross-functional team

Awareness

Cameron and **Gloria** are two biologists starting a **new collaboration** on a project on **modelling** large mammal migrations.

They are both excited about the project and want to make it a success. They are not sure how best to **leverage their expertise** and **align** their **ways of working**.

Cameron has a **computational background** working with big data and adopts Open Science practices like **reproducible workflows**, version control and data archiving. He has **some knowledge** of the study species.

Gloria has **extensive fieldwork experience** with large mammals and keeping **detailed field notebooks**. She is **aware** of some Open Science practices, but her workflows are **not yet reproducible** (e.g. she uses point and click software for data analysis).

What could Cameron and Gloria do next? What **potential challenges** could they experience?

Case study: building a cross-functional team

Acknowledge

Challenges

Conceptual

Practical

Equity

Cameron and **Gloria** are two biologists starting a **new collaboration** on a project on **modelling** large mammal migrations.

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Cameron has a **computational background** working with big data and adopts Open Science practices like **reproducible workflows**, version control and data archiving. He has **some knowledge** of the study species.

Conceptual challenges: Same discipline but different norms, possible confusion over Open Science concepts and study species.

Gloria has **extensive fieldwork experience** with large mammals and keeping **detailed field notebooks**. She is **aware** of some Open Science practices, but her workflows are **not yet reproducible** (e.g. she uses point and click software for data analysis).

Case study: building a cross-functional team

Acknowledge

Challenges

Conceptual

Practical

Equity

Cameron and **Gloria** are two biologists starting a **new collaboration** on a project on **modelling** large mammal migrations.

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Cameron has a **computational background** working with big data and adopts Open Science practices like **reproducible workflows**, version control and data archiving. He has **some knowledge** of the study species.

Practical challenge: Developing an organizational infrastructure that accounts for varying Open Science skills

Gloria has **extensive fieldwork experience** with large mammals and keeping **detailed field notebooks**. She is **aware** of some Open Science practices, but her workflows are **not yet reproducible** (e.g. she uses point and click software for data analysis).

Case study: building a cross-functional team

Acknowledge

Challenges

Conceptual

Practical

Equity

Cameron and **Gloria** are two biologists starting a **new collaboration** on a project on **modelling** large mammal migrations.

They are both excited about the project and want to make it a success. They are not sure how best to **leverage their expertise** and **align** their **ways of working**.

Cameron has a **computational background** working with big data and adopts Open Science practices like **reproducible workflows**, version control and data archiving. He has **some knowledge** of the study species.

Equity challenge: Valuing diverse expertise and experiences. What does a successful collaboration look like?

Gloria has **extensive fieldwork experience** with large mammals and keeping **detailed field notebooks**. She is **aware** of some Open Science practices, but her workflows are **not yet reproducible** (e.g. she uses point and click software for data analysis).

Case study: building a cross-functional team


Agency


Sphere of influence


Inter-personal


Individual

Cameron and **Gloria** are two biologists starting a **new collaboration** on a project on **modelling** large mammal migrations.

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Agency: The challenges are mostly at the team and individual level

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Case study: building a cross-functional team

Action

Cameron and **Gloria** are two biologists starting a **new collaboration** on a project on **modelling** large mammal migrations.

Research domain

They are both excited about the project and want to make it a success. They are not sure how best to **leverage their expertise** and **align** their **ways of working**.

Research cycle

Clear communication

Cameron has a **computational background** working with big data and adopts Open Science practices like **reproducible workflows**, version control and data archiving. He has **some knowledge** of the study species.

Actions: Create a shared code of collaboration. Helps ensure joint agreement of expectations for project workflow, roles, outputs and ways of communicating

Gloria has **extensive fieldwork experience** with large mammals and keeping **detailed field notebooks**. She is **aware** of some Open Science practices, but her workflows are **not yet reproducible** (e.g. she uses point and click software for data analysis).

Collective problem-solving with case studies

1. **Find** your case study group in the central document

2. **Nominate** 1 person to be a **notetaker** and 1 **spokesperson**

3. **Read** the case study scenario and guiding questions

4. In your groups **note down** some **challenges**, **strategies**

5. **Compare** your group's suggested strategies with those in the case study and **reflect** in the central document

6. **Whole group discussion** and reflections

~20 mins

What does leadership in Open Science/Scholarship mean to you?

Prof. Dr. Hu Chuan-Peng

Professor at the School of Psychology, Nanjing Normal University, Nanjing, China

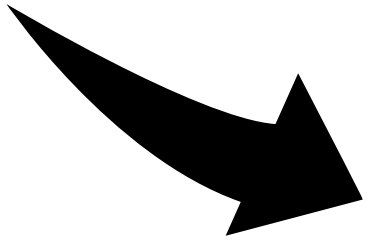
Founding member and organizer of the Chinese Open Science Network (COSN)

"To me, leadership in Open Science/Scholarship means helping build a research culture where **rigor**, **transparency**, and **collaboration** are **valued over metrics** alone.

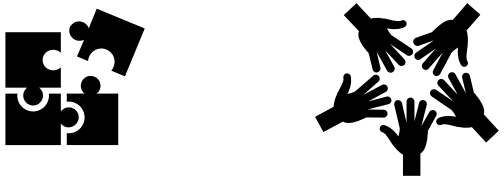
Through the Chinese Open Science Network, I aim to provide an **alternative model** of scientific practice and **empower early-career researchers** to shape a **healthier** and more **inclusive** academic system."

Leadership qualities we practiced

Using the 5A framework we worked on our collaborative problem-solving skills!



See workbook for resources!



Final summary and questions

There is no one way to take **action** to address challenges.

Approaches consider:

- **Context** (scale and domain of challenges, **types** of **values, motivations** of **self** and **others**)
- **Starting** somewhere **small** and then building up
- **Capacity**, **resources** and **equity**

Case studies are a useful active exercise by:

- Combining **theory** and **practice**
- Having a **flexible** approach (**individual** or **group** discussions)
- Building up **problem-solving skills** on a realistic scenario

As you take action, keep in mind: What would be successful outcome?

Some Open Science communities and networks

LMU, Munich Open Science Center: https://www.osc.lmu.de/about/join-us.html

FORRT (Framework for Open and Reproducible Research Training):https://forrt.org/about/get-involved/

Global reproducibility networks (e.g. German Reproducibility Network): https://www.ukrn.org/global-networks/

ReproducibiliTea: https://reproducibilitea.org/

R Ladies: https://rladies.org/about-us/involved/

SORTEE (Society for Open, Reliable, and Transparent Ecology and Evolutionary Biology): https://sortee.org/join/

Quala Lab: https://qualalab.org/contact-us/

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Some alternatives to OSF projects

Non exhaustive list!

Data repository:

Dataverse: https://dataverse.harvard.edu/

Dryad: https://datadryad.org/

Code repository:

GitHub: https://github.com/

Figshare: https://figshare.com/

Methods repository:

Protocols.io: https://www.protocols.io/

Research outputs:

Zenodo: https://zenodo.org/

If you are at LMU, Zenodo community:

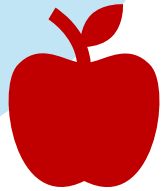
https://zenodo.org/communities/lmu/about

Blogs to read more:

- https://help.osf.io/article/735-choosing-a-repository
- https://daniellakens.blogspot.com/2026/08/which-data-repository-should-you-use.html

Break time

14:00-14:15 CEST



Next up: Design your own Open Science event/workshop part 2