Navigating leadership in Open Science: strategies



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OSC LMU Open Science Center

FORRT

Prerequisites

- A foundational understanding of Open Science practices such as open access, preregistration, where training materials can be found here: https://www.osc.lmu.de/training/
- Leadership in Open Science: Skills, values and culture (access here)
- Navigating leadership in Open Science: Challenges (access here)
- Access to the Open Research Workshop Design Workbook https://lmu-osc.github.io/train-the-trainer-open-research/workshop-design-workbook/
- Access to Leadership in Open Science case studies

Note:
These training materials form part of three sessions on leadership in Open Science:

1. Skills, values and culture (access here)
2. Challenges (access here)
3. Strategies (current session)

Survey

How confident are you in your ability to:

0 = not confident at all, 1 = mostly not confident, 2 = somewhat confident, 3 = very confident

1. use effective strategies to address challenges within Open Science?

Session 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.



Quick recap

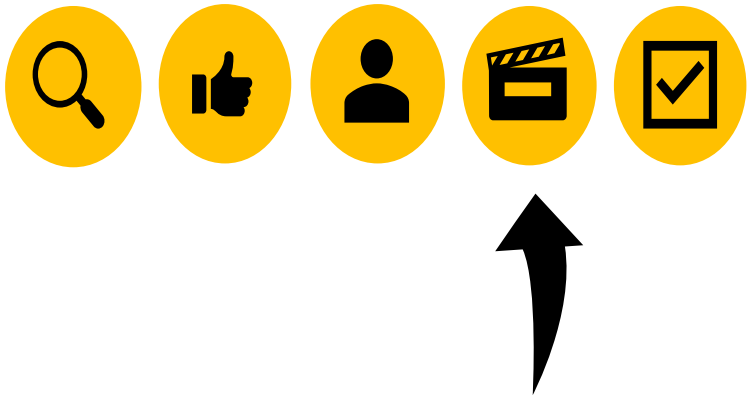
Looked at **what** and **why** of some challenges in Open Science



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

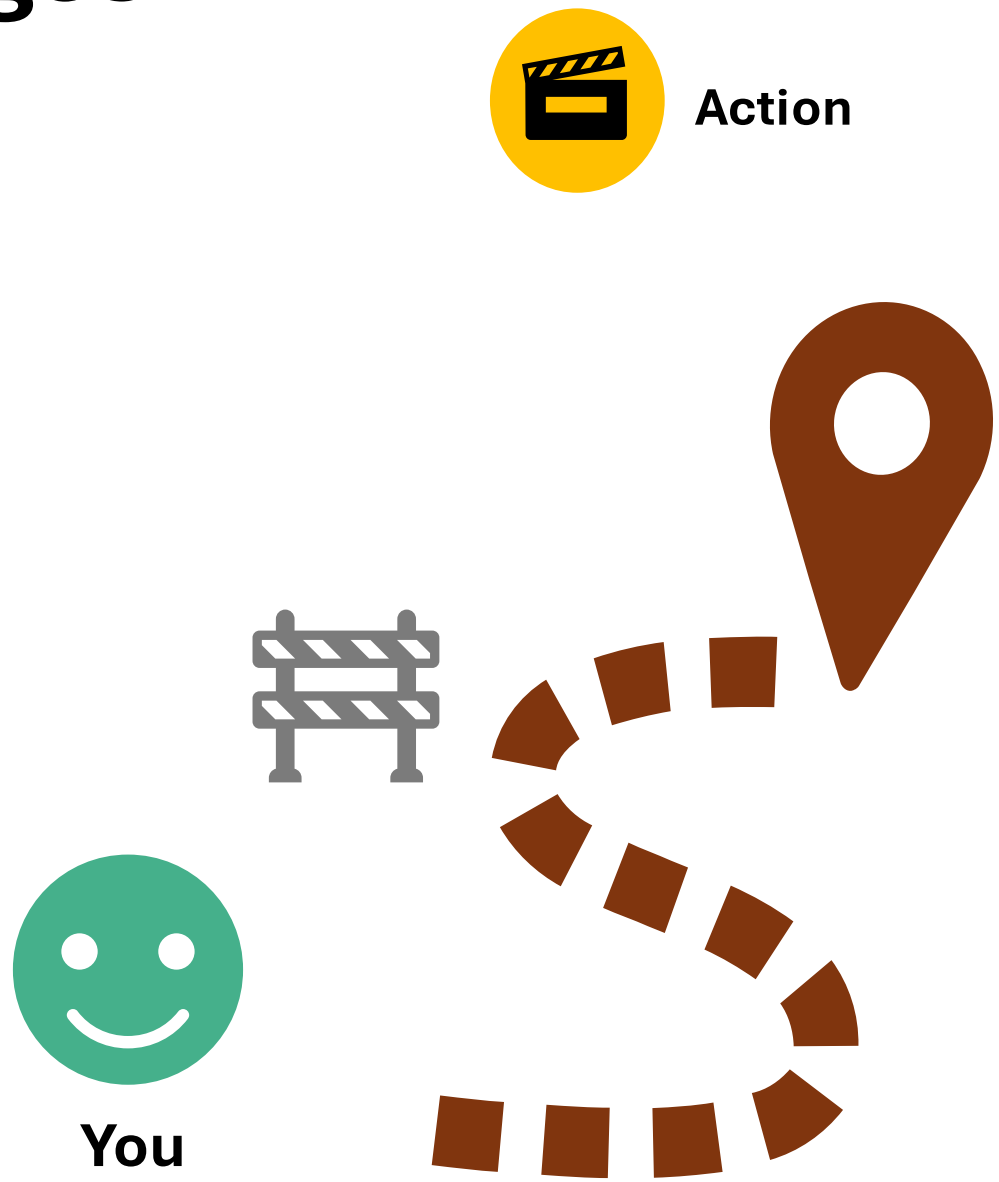


We're at the **action** stage now

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**?



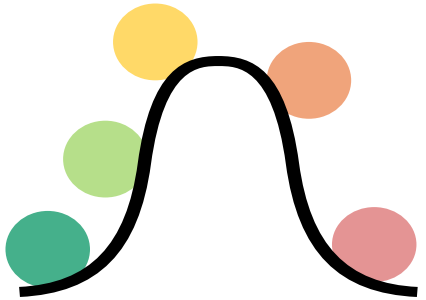
Which **domain(s)**?



Where in the **research life cycle**?



Adopter type?



What is my **positionality**?



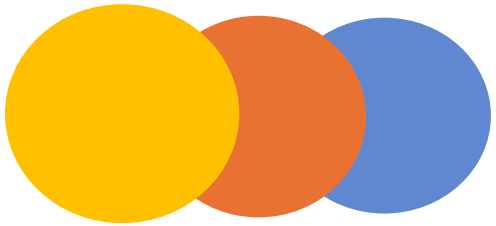
Ihle et al. 2026; Rogers, 1983; Middleton et al. 2026

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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



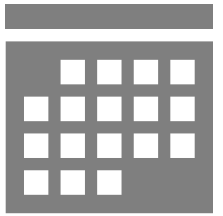
e.g. What things can I influence/control in a situation?

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



Bergmann (2023)

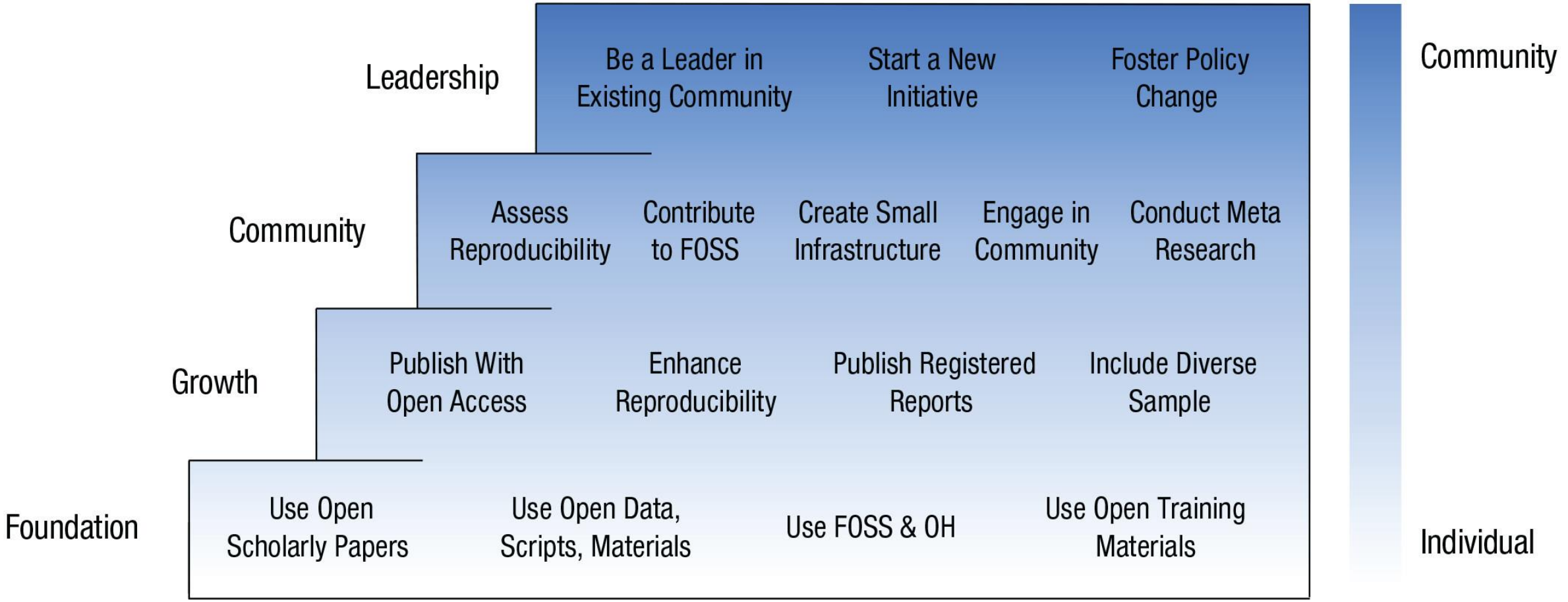
Identify what can be done **now** and what **can wait**



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



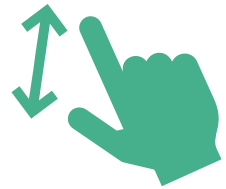
e.g. Openness and flexibility to different ways of working, establish multiple ways to contribute

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

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

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

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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

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

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

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Collective problem-solving with case studies

1. **Find** your case study group

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**

6. **Whole group discussion** and reflections

~20 mins

Case study series on leadership in Open Science

Columbus, A., & Middleton, S. L. (2026, September 3). Leading an equitable Big Team Science consortium, a case study series on leadership in Open Science (LMU Open Science Center and FORRT). Zenodo. https://doi.org/10.5281/zenodo.22282068

Daniel, A., & Middleton, S. L. (2026, September 4). Finn's struggle to choose a method(ology), a case study series on leadership in Open Science (LMU Open Science Center and FORRT). Zenodo. https://doi.org/10.5281/zenodo.22308007

Daniel, A., Verheyen, S., & Middleton, S. L. (2026, September 4). Listening beyond protocol: Roya's experience with cultural ways of knowing, a case study series on leadership in Open Science (LMU Open Science Center and FORRT). Zenodo. https://doi.org/10.5281/zenodo.22308238

Mathy, A., & Middleton, S. L. (2026, September 4). Contributorship under tension, a case study series on leadership in Open Science (LMU Open Science Center and FORRT). Zenodo. https://doi.org/10.5281/zenodo.22307117

Middleton, S. L., & Ihle, M. (2026, September 4). Paulo's preregistration problem, a case study series on leadership in Open Science (LMU Open Science Center and FORRT). Zenodo. https://doi.org/10.5281/zenodo.22307709

Plank, I. S., & Middleton, S. L. (2026, September 4). Alex's open code dilemma, a case study series on leadership in Open Science (LMU Open Science Center and FORRT). Zenodo. https://doi.org/10.5281/zenodo.22306455

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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)

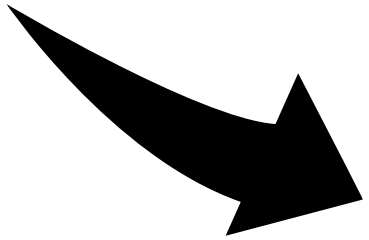
"To me, leadership in Open Science/Scholarship means helping build a research culture where **rigor**, **transparency**, and **collaboration** are **valued over metrics** alone.

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."

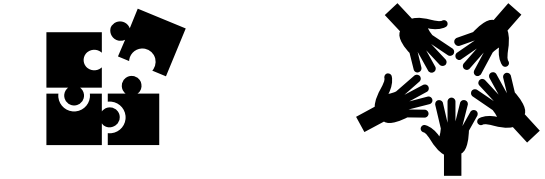
Leadership qualities we practiced

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





See workbook for resources!



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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?

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Take homes and wrap up

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



Prof. Dorothy Bishop

Emeritus Professor of Developmental Neuropsychology, University of Oxford.

"Leadership in Open Science means **leading by example**.

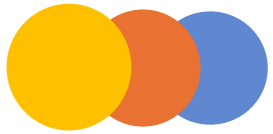
It doesn't mean doing everything perfectly - that is often too high a bar. But it does mean that in your own work you build open science into the research pipeline and **reward your research team** for **good practice** rather than for fast-churn flashy science."

Leadership in Open Science take home messages

Self-leadership and sideways leadership

5A framework for navigating challenges

Built up your **leadership toolbox**!







Empathy

Self-awareness



Knowledge

Problem-solving

Collaboration





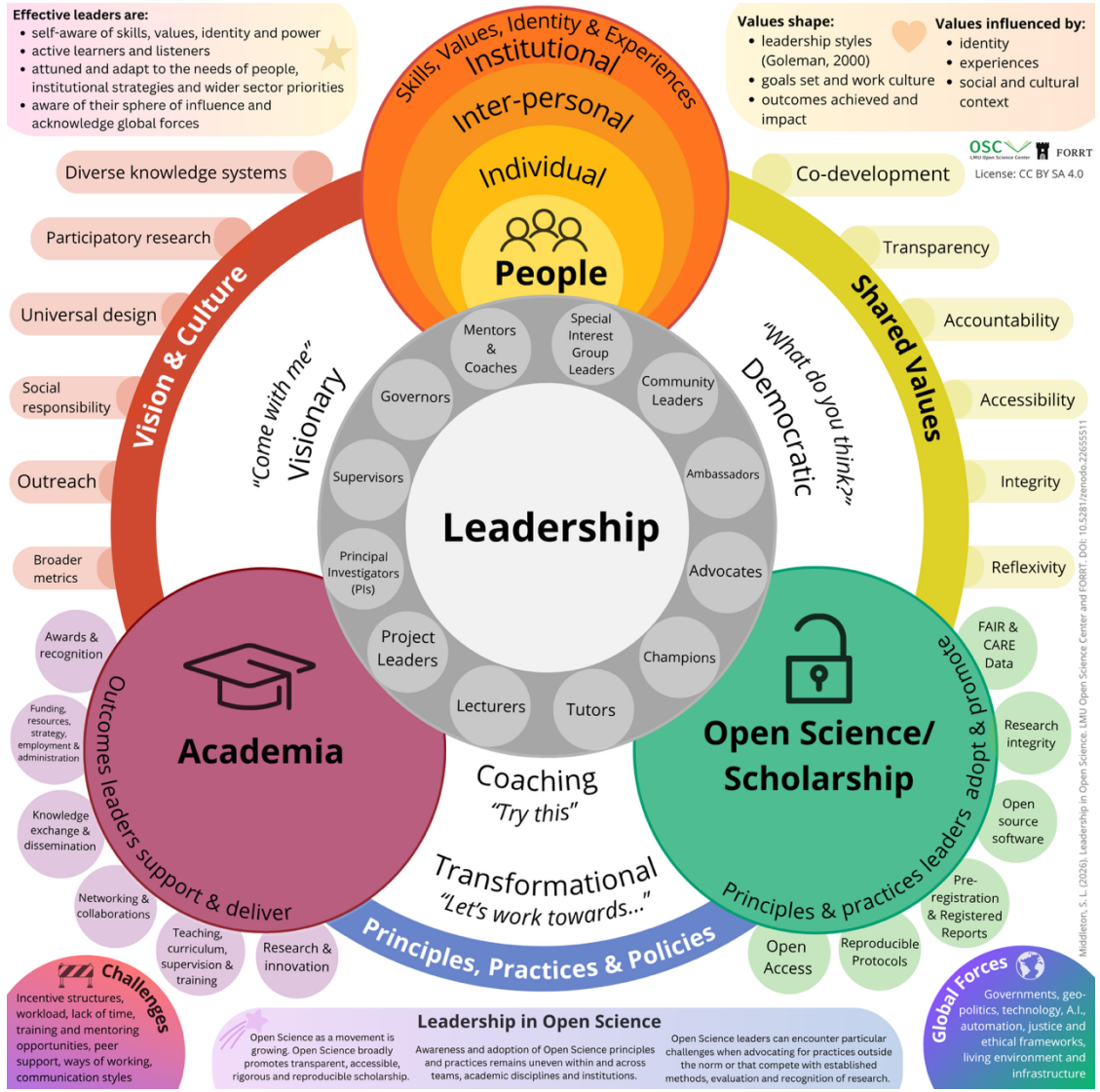






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Leadership in Open Science summary sheet



https://zenodo.org/records/22655511

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



Dr. Madeleine Pownall

Associate Professor in Psychology,
University of Leeds, UK

"Open science leadership to me means figuring out the best, most utopian, idealised version of what we want science to look like and then **figuring out** how we get there together.

Leadership is about **vision**, **optimism**, **hope**, and harnessing the power of the **collective** to make things better for everyone."

Survey

How confident are you in your ability to:

0 = not confident at all, 1 = mostly not confident, 2 = somewhat confident, 3 = very confident

1. use effective strategies to address challenges within Open Science?

Questions

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Contribution statement

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Sharing leadership and Open Science expertise:
Hu Chuan-Peng, Richard Telford, Dorothy Bishop, Madeleine Pownall

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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/

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://www.osc.lmu.de/news/news/2026-09-29-osf-project-functionality.html
- https://help.osf.io/article/735-choosing-a-repository
- https://daniellakens.blogspot.com/2026/08/which-data-repository-should-you-use.html